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HIN/MED/2023-2024/100661
30th May 2023

CALIBRATION CERTIFICATE

This is to certify that the Hematology Analyzer **Yumizen H550** bearing serial number: **111YAXH03577** installed at **Redcliffe Lifetech surat** is calibrated on 30th May 2023.

Calibrator : ABX MINOCAL
Lot No. : CX482
Expiry Date : 05th June 2023

The reports of Blank Cycle, Repeatability and Calibration Values were all found in acceptable range.

Next calibration cycle is due on **29th May 2024**.

Shrish Dixit

(Head- Products & Marketing)
For **Horiba India Pvt. Ltd.**

Blank Cycle Logs

Running Date	Operator	WBC 10 ³ /μL	RBC 10 ⁶ /μL	HGB g/dL	PLT 10 ³ /μL	Status	Technical alarms
05/30/2023 03:08:54 PM	technician	120.87 H	0.00	0.0	0	Failed	Optical Bench Light Error
05/30/2023 03:13:37 PM	technician	0.00	0.00	0.0	0	Passed	
05/30/2023 03:31:39 PM	technician	0.01	0.00	0.0	0	Passed	

Repeatability Report (part 1)

Number of repeatability run report selected for statistic calculation 11/11

Coefficient	WBC (10 ³ /μL)	RBC (10 ⁶ /μL)	HGB (g/dL)	HCT (%)	PLT (10 ³ /μL)	MCV (μm ³)	RDW-CV (%)	RDW-SD (μm ³)	P-LCR (%)
Minimum	7.72	5.26	13.9	40.7	237	77.3	11.5	33.6	32.3
Maximum	7.97	5.42	14.3	42.3	263	78.2	12.6	36.1	37.9
Mean	7.84	5.38	14.1	41.7	253	77.6	12.0	34.9	34.4
Difference	0.26	0.16	0.4	1.5	26	0.9	1.2	2.5	5.5
2 SD	0.15	0.10	0.3	0.8	14	0.5	0.6	1.4	3.0
CV(%)	0.94	0.89	0.92	0.97	2.81	0.33	2.55	1.97	4.42

Sel	Run Date &Time	WBC (10 ³ /μL)	RBC (10 ⁶ /μL)	HGB (g/dL)	HCT (%)	PLT (10 ³ /μL)	MCV (μm ³)	RDW-CV (%)	RDW-SD (μm ³)	P-LCR (%)	Operator
✓	05/30/2023 03:32:07 PM	7.81	5.41	14.3	42.0	259	77.6	11.9	34.4	35.9	technician
✓	05/30/2023 03:35:30 PM	7.97	5.40	14.2	41.8	252	77.3	12.2	35.3	34.1	technician
✓	05/30/2023 03:37:05 PM	7.92	5.42	14.3	41.9	256	77.3	11.8	34.4	37.9	technician
✓	05/30/2023 03:38:39 PM	7.80	5.40	14.1	41.8	246	77.5	11.9	34.4	33.9	technician
✓	05/30/2023 03:40:15 PM	7.76	5.42	14.1	42.0	263	77.4	12.2	35.3	33.8	technician
✓	05/30/2023 03:41:51 PM	7.83	5.33	14.1	41.4	256	77.5	12.1	35.3	33.6	technician
✓	05/30/2023 03:44:05 PM	7.72	5.40	14.0	41.9	257	77.7	12.2	35.3	35.4	technician
✓	05/30/2023 03:45:36 PM	7.82	5.35	14.0	41.6	237	77.8	12.1	35.3	34.4	technician
✓	05/30/2023 03:47:09 PM	7.85	5.41	13.9	42.3	255	78.2	12.6	36.1	33.0	technician
✓	05/30/2023 03:48:40 PM	7.88	5.26	14.0	40.7	248	77.4	11.7	34.4	34.2	technician
✓	05/30/2023 03:50:13 PM	7.91	5.36	14.0	41.6	255	77.7	11.5	33.6	32.3	technician

Repeatability Report (part 2)

Number of repeatability run report selected for statistic calculation 11/11

Coefficient	NEU% (%)	LYM% (%)	MON% (%)	EOS% (%)	BAS% (%)	LIC% (%)
Minimum	53.8	31.3	6.9	4.2	0.6	0.3
Maximum	55.5	32.3	8.4	5.3	1.2	0.6
Mean	54.6	31.9	7.7	4.8	0.9	0.4
Difference	1.7	1.0	1.5	1.1	0.6	0.3
2 SD	1.3	0.7	1.0	0.7	0.4	0.2
CV(%)	1.16	1.13	6.79	6.99	21.35	18.41

Sel	Run Date &Time	NEU% (%)	LYM% (%)	MON% (%)	EOS% (%)	BAS% (%)	LIC% (%)	Operator
✓	05/30/2023 03:32:07 PM	55.4	31.7	7.7	4.2	1.0	0.4	technician
✓	05/30/2023 03:35:30 PM	54.2	32.1	8.0	5.0	0.7	0.5	technician
✓	05/30/2023 03:37:05 PM	55.4	31.5	7.0	4.9	1.2	0.6	technician
✓	05/30/2023 03:38:39 PM	53.9	32.2	8.4	4.7	0.8	0.4	technician
✓	05/30/2023 03:40:15 PM	54.5	31.4	8.3	4.7	1.1	0.4	technician
✓	05/30/2023 03:41:51 PM	55.5	31.8	7.0	4.5	1.2	0.5	technician
✓	05/30/2023 03:44:05 PM	54.5	32.1	7.7	4.6	1.1	0.4	technician
✓	05/30/2023 03:45:36 PM	55.0	31.3	7.7	5.2	0.8	0.5	technician
✓	05/30/2023 03:47:09 PM	54.9	31.9	6.9	5.3	1.0	0.4	technician
✓	05/30/2023 03:48:40 PM	54.0	32.3	8.1	5.0	0.6	0.5	technician
✓	05/30/2023 03:50:13 PM	53.8	32.3	7.8	5.2	0.9	0.3	technician

Calibration Report

Sample ID CX482
Lot number CX482

Name MINOCAL

Exp. date 06/05/2023
Modified on

Coefficient	WBC	RBC	HGB	HCT	PLT	MPV
New	1.141	1.065	0.985	0.967	1.166	1.113
Current	1.141	1.065	1.023	1.007	1.195	1.113
Target	9.00	4.42	12.8	37.1	255	10.4
Mean	9.23	4.46	13.0	40.6	251	9.8
CV(%)	0.32	0.43	0.49	0.55	2.16	1.37

Number of calibration run selected for coefficient calculation (minimum 5) 5/5

Sel.	Run Time	WBC (10 ³ /μL)	RBC (10 ⁶ /μL)	HGB (g/dL)	HCT (%)	PLT (10 ³ /μL)	MPV (μm ³)
✓	05/30/2023 04:05:05 PM	9.24 h	4.47	13.0 h	40.8 h	245 l	9.8 l
✓	05/30/2023 04:06:47 PM	9.20 h	4.47	13.0	40.6 h	252	9.9
✓	05/30/2023 04:08:33 PM	9.22 h	4.47	13.0	40.7 h	259	9.9
✓	05/30/2023 04:10:02 PM	9.22 h	4.43	13.1 h	40.3 h	253	9.9
✓	05/30/2023 04:11:37 PM	9.28 h	4.46	12.9	40.3 h	249	9.6 l

QC - Control Run Report

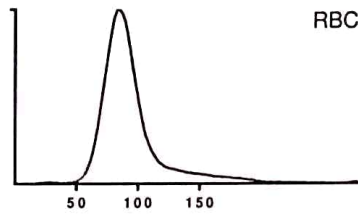
Run Date | 05/30/2023 04:59:54 PM

Operator | technician

Name | ABXdifftrol H
 Level | High
 Lot number | PX441H

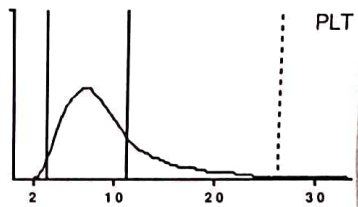
Sample ID | PX441H
 Exp. date | 07/05/2023

			Range
RBC	5.22	10 ⁶ /μL	4.86 - 5.36
HGB	16.0	g/dL	15.1 - 16.3
HCT	48.3	%	44.5 - 49.5
MCV	92.6	μm ³	87.0 - 97.0
MCH	30.6	pg	28.2 - 33.2
MCHC	33.1	g/dL	30.4 - 36.4
RDW-CV	13.2	%	10.0 - 18.0



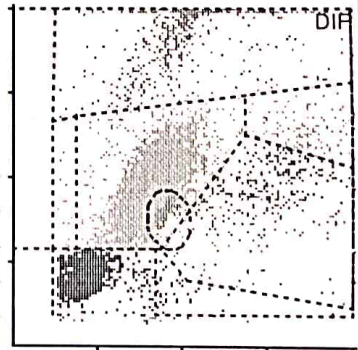
Alarms

			Range
PLT	495	10 ³ /μL	439 - 539
MPV	9.7	μm ³	7.3 - 11.3



			Range
WBC	18.32	10 ³ /μL	16.20 - 20.60

	#	Range	%	Range
NEU	13.00	10.67 -	71.1	58.3 - 78.3
LYM	3.34	2.12 - 5.12	18.2	11.7 - 27.7
MON	0.63	0.00 - 1.48	3.4	0.0 - 8.0
EOS	0.96	0.00 - 1.44	5.2	0.0 - 7.8
BAS	0.39	0.00 - 1.50	2.1	0.0 - 8.2



Raw Data

PLT counts (by sections)

S1	S2	S3	S4	S5	S6
373	382	365	358	396	378
S7	S8	S9	S10	S11	S12
386	398	423	360	424	427

RBC counts (by sections)

S1	S2	S3	S4	S5	S6
4245	4235	4168	4244	4107	4148
S7	S8	S9	S10	S11	S12
4090	4140	4128	4152	4150	4146

WBC counts (by sections) and others

S1	S2	S3	S4	S5	S6
1219	1143	1205	1155	1192	1157
S7	S8	S9	S10	S11	
1200	1130	1221	1220	1125	

HBG measures (Optical intensity)

LI1	LI2	LI3	LI4	LI5	LI6
3859	3867	3875	701	701	701
LI7	LI8	LI9	LI10	LI11	LI12
701	702	701	701	702	702
LI13					
702					

RMeasured : 10717
 Correlated : 10703
 Optical intensity : 196

QC - Control Run Report

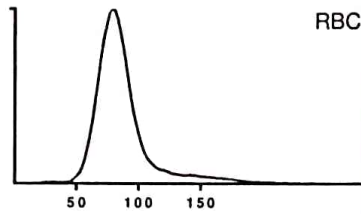
Run Date | 05/30/2023 04:56:01 PM

Operator | technician

Name | ABXdiffrol N
Level | Normal
Lot number | PX441N

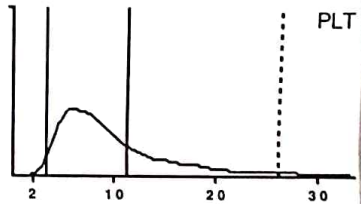
Sample ID | PX441N
Exp. date | 07/05/2023

			Range
RBC	4.63	10 ⁶ /μL	4.39 - 4.79
HGB	13.3	g/dL	12.7 - 13.7
HCT	38.3	%	37.9 - 41.9
MCV	82.6	μm ³	82.0 - 92.0
MCH	28.7	pg	26.8 - 30.8
MCHC	34.7	g/dL	30.1 - 36.1
RDW-CV	13.7	%	11.0 - 19.0

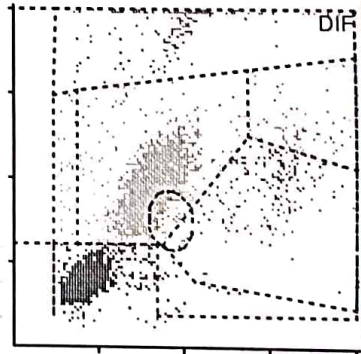


Alarms

			Range
PLT	253	10 ³ /μL	210 - 270
MPV	10.0	μm ³	7.3 - 11.3



			Range
WBC	8.26	10 ³ /μL	7.20 - 9.20
	#	Range	%
NEU	4.24	2.97 - 4.77	51.4
LYM	3.30	2.74 - 4.14	40.0
MON	0.32	0.00 - 0.80	3.8
EOS	0.33	0.00 - 0.48	4.0
BAS	0.07	0.00 - 0.50	0.8



Raw Data

PLT counts (by sections)

S1	S2	S3	S4	S5	S6
201	202	217	239	227	226
S7	S8	S9	S10	S11	S12
196	187	201	221	235	234

RBC counts (by sections)

S1	S2	S3	S4	S5	S6
3727	3792	3826	3818	3729	3731
S7	S8	S9	S10	S11	S12
3760	3741	3712	3725	3675	3789

WBC counts (by sections) and others

S1	S2	S3	S4	S5	S6
542	548	491	552	528	539
S7	S8	S9	S10	S11	
521	540	537	522	558	

HBG measures (Optical Intensity)

LI1	LI2	LI3	LI4	LI5	LI6
3880	3880	3880	922	922	922
LI7	LI8	LI9	LI10	LI11	LI12
922	922	922	921	922	922
LI13					
922					

RMeasured : 5296
 Correlated : 5190
 Optical intensity : 196

QC - Control Run Report

Run Date | 05/30/2023 04:49:28 PM

Operator | technician

Name | ABXdifftrol L

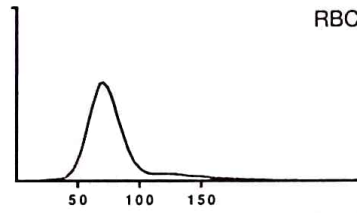
Sample ID | PX441L

Level | Low

Exp. date | 07/05/2023

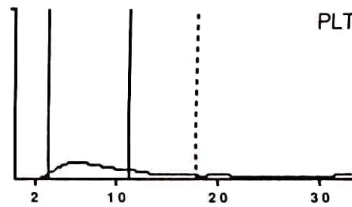
Lot number | PX441L

			Range
RBC	2.39	10 ⁶ /μL	2.16 - 2.48
HGB	6.0	g/dL	5.4 - 6.2
HCT	18.3	%	16.2 - 19.2
MCV	76.3	μm ³	71.5 - 81.5
MCH	25.3	pg	23.0 - 27.0
MCHC	33.1	g/dL	29.7 - 35.7
RDW-CV	16.4	%	12.0 - 20.0

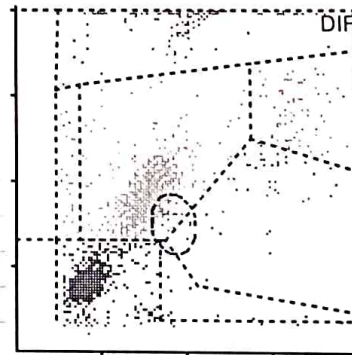


Alarms

			Range
PLT	52	10 ³ /μL	48 - 88
MPV	9.2	μm ³	7.1 - 11.1



WBC	3.16	10 ³ /μL	Range	2.50 - 3.30
	#		Range	%
NEU	1.49		0.84 - 1.54	47.2
LYM	1.29		0.88 - 1.54	40.7
MON	0.10		0.00 - 0.42	3.0
EOS	0.24		0.00 - 0.36	7.7
BAS	0.04		0.00 - 0.22	1.4



Raw Data

PLT counts (by sections)						RBC counts (by sections)					
S1	S2	S3	S4	S5	S6	S1	S2	S3	S4	S5	S6
62	66	66	87	79	94	2095	2091	1992	2129	2026	2061
S7	S8	S9	S10	S11	S12	S7	S8	S9	S10	S11	S12
65	70	81	80	65	102	2118	2004	2097	2119	2142	2054
WBC counts (by sections) and others						HGB measures (Optical intensity)					
S1	S2	S3	S4	S5	S6	LI1	LI2	LI3	LI4	LI5	LI6
205	201	199	243	211	205	3881	3880	3881	1977	1977	1976
S7	S8	S9	S10	S11		LI7	LI8	LI9	LI10	LI11	LI12
202	180	191	216	204		1976	1976	1976	1977	1977	1977
RMeasured :	2002					LI13					
Correlated :	1868					1976					
Optical intensity :	196										

QC - Control Run Report

Run Date | 26/03/2024 09:13:14 AM

Operator | ADMIN

Name | ABXdifftrol L

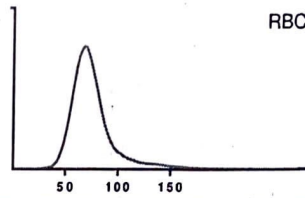
Sample ID | PX446L

Level | Low

Exp. date | 05/05/2024

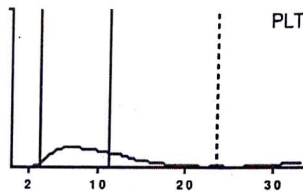
Lot number | PX446L

			Range
RBC	2.21	10 ⁶ /μL	2.16 - 2.48
HGB	5.8	g/dL	5.4 - 6.2
HCT	17.7	%	16.5 - 19.5
MCV	79.9	μm ³	72.5 - 82.5
MCH	26.2	pg	23.0 - 27.0
MCHC	32.7	g/dL	29.3 - 35.3
RDW-CV	15.5	%	12.0 - 20.0

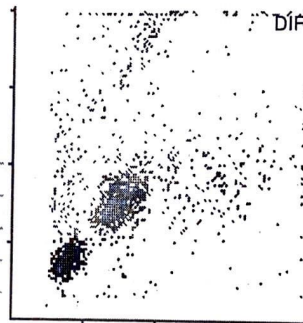


Alarms

			Range
PLT	65	10 ³ /μL	45 - 85
MPV	9.3	μm ³	7.4 - 11.4



WBC	3.30	10 ³ /μL	Range	
	#	Range	%	Range
NEU	1.45	0.97 - 1.67	43.9	33.9 - 53.9
LYM	1.14	0.75 - 1.41	34.6	24.0 - 48.0
MON	0.22	0.00 - 0.52	6.6	0.0 - 17.2
EOS	0.33	0.00 - 0.40	10.1	0.0 - 13.0
BAS	0.16	0.00 - 0.30	4.8	0.0 - 10.0



Slide Review

Neutrophil	Myeloblast	Anisocytosis
Lymphocyte	Promyelocyte	Hypochromia
Monocyte	Myelocyte	Polychromasia
Eosinophil	Metamyelocyte	Poikilocytosis
Basophil	Blast	Microcytosis
Atypical Lymphocyte	Target Cell	Macrocytosis
Other	Sickle Cell	Platelet Clumps

Reviewed on _____ by _____ Signature :

Amal Kaur

QC - Control Run Report

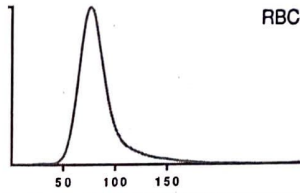
Run Date | 26/03/2024 09:10:33 AM

Operator | ADMIN

Name | ABXdifftrol N
 Level | Normal
 Lot number | PX446N

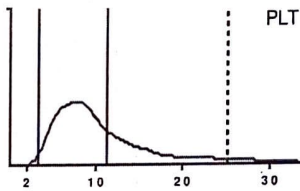
Sample ID | PX446N
 Exp. date | 05/05/2024

			Range
RBC	4.48	10 ⁶ /μL	4.37 - 4.77
HGB	12.7	g/dL	12.3 - 13.3
HCT	39.5	%	37.5 - 41.5
MCV	88.1	μm ³	81.5 - 91.5
MCH	28.4	pg	26.0 - 30.0
MCHC	32.2	g/dL	29.4 - 35.4
RDW-CV	12.7	%	10.0 - 18.0

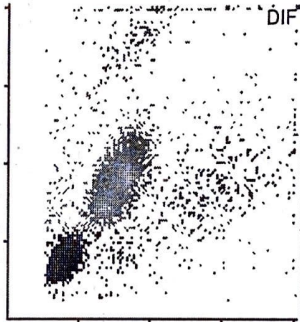


Alarms

			Range
PLT	226	10 ³ /μL	199 - 259
MPV	9.5	μm ³	7.4 - 11.4



			Range	
WBC	8.22	10 ³ /μL	7.40 - 9.40	
	#		Range	%
NEU	4.28		3.31 - 5.11	52.1
LYM	3.01		2.53 - 3.93	36.6
MON	0.50		0.00 - 1.00	6.1
EOS	0.34		0.00 - 0.54	4.1
BAS	0.09		0.00 - 0.40	1.1
			Range	
			40.1 - 60.1	
			30.4 - 46.4	
			0.0 - 11.8	
			0.0 - 6.4	
			0.0 - 4.8	



Slide Review

Neutrophil	Myeloblast	Anisocytosis
Lymphocyte	Promyelocyte	Hypochromia
Monocyte	Myelocyte	Polychromasia
Eosinophil	Metamyelocyte	Poikilocytosis
Basophil	Blast	Microcytosis
Atypical Lymphocyte	Target Cell	Macrocytosis
Other	Sickle Cell	Platelet Clumps

Reviewed on _____ by _____ Signature :