



क्षेत्रीय निर्देश मानक प्रयोगशाला
(विधिक माप विज्ञान)
Regional Reference Standards Laboratory
(Legal Metrology)

भारत सरकार

उपभोक्ता मामले, खाद्य और सार्वजनिक वितरण मंत्रालय
उपभोक्ता मामले विभाग
जक्कुर पोस्ट, बेंगलूरु - ५६० ०६४.

Government of India,

Ministry of Consumer Affairs, Food & Public Distribution
Department of Consumer Affairs
JAKKUR, BENGALURU - 560 064.

10(02)/RRSL/B/2025-26(203)/ 139

दिनांक/ Date.....14.10.2025.....

To,

M/s Yes Yes Technologies,
47/A, Rajaji Road, Ram Nagar,
Coimbatore - 641 009.

Subject: Forwarding of Type test reports of Electronic Weighing Systems as per specifications of IS-9281 (Pt 1&2)/1979, IS-9281 (Part-3)/1981 & IS 9281(Pt. 4)1983 (Reaffirmed 2006) - reg.

Sir,

With reference to your letter dated 25.09.2025 on the above mentioned subject, please find enclosed herewith following one type test reports of Electronic Weighing System under the Brand name of 'POINT' as per specifications of IS-9281 (Pt 1&2)/1979, IS-9281 (Part-3)/1981 & IS 9281(Pt. 4)1983 (Reaffirmed 2006).

1. Electronic Weighing System having capacity 2000 kg, e-200 g, Accuracy Class- 1 for PPS- Series, Sl. No. - 20251075.

The laboratory has also tested the sample for **Dry Heat Test** in accordance with IS: 9000 (Part-3/Sec. 5/1977) (Reaffirmed 2004), and **Cold Test** in accordance with IS: 9000 (Part-2/ Sec.4/1977) (Reaffirmed 2004). It is informed that the overall performance are satisfactory and confirm to the BIS specifications- IS-9281(Pt 1&2)/1979, IS-9281 (Part-3)/1981 & IS 9281(Pt. 4)1983 (Reaffirmed 2006).

It is requested to acknowledge the receipt of the reports.

Yours Faithfully

(C S SHARMA)

Deputy Director, Legal Metrology

Encl: As Stated.

**Table -1 – Test results of Electronic Weighing Systems
of Maximum Capacity 2000 kg and Scale division 200 g as per
Accuracy class 1 of IS-9281 (part III) –1981(Reaffirmed 2006)**

Brand Name: Point, Model No. PPS - series;

Machine serial number: 20251075

Sl. No.	Name of the test / parameters	Typical values / specification	Actual sample results	Remarks
01.	Rated load	2000 kg	2000 kg	OK
02.	Accuracy - class 1	± 0.05 % of RO	< 0.05 % of RO	OK
03.	Transducer excitation and distortion / regulation	As per mfr's specification	5 V DC	OK
04.	Non-linearity	± 0.05 % of RO	< 0.05 % of RO	OK
05.	Drift of no-load output with temperature	± 0.005 % of RO / degree cent.	< 0.005 % of RO	OK
06.	Drift of no-load output with time after 1 hour	± 0.015 % of RO	< 0.015 % of RO	OK
07.	Drift of full scale output with time after 1 hour	± 0.015 % of RO	< 0.015 % of RO	OK
08.	Internal calibration	As per mfr's specification	Not Provided	OK
09.	Number of scale division	As per mfr's specification	10000	OK
10.	Resolution	As per mfr's specification	200 g	OK
11.	Tare provisions	As per mfr's specification	Manual	OK
12.	Display	As per mfr's specification	LED	OK
13.	Recording	As per mfr's specification	Not Applicable	OK
14.	Speed of measurement	As per mfr's specification	100 milli- seconds	OK
15.	Overload indication	As per mfr's specification	Beyond 2001.800 kg Display Shows 'OL'	OK
16.	Response to full scale	3 sec.	< 3 seconds	OK
17.	Operating temperature	As specified in IS: 1900 (part I) 1977 -Basic environmental testing procedures	0 to 50°C	OK



[Handwritten signature in blue ink]

Sl. No.	Name of the test / parameters	Typical values / specification	Actual sample results	Remarks
18.	Warm up periods	60 min.	15 minutes	OK
19.	Weight	As per mfr's specification	62.1 kg $\pm$ 100 g	NA
20.	Dimensions	As per mfr's specification	PAN SIZE 1000x1000 mm	OK
21.	Environmental condition	As per IS-9000	Damp heat /Dry heat / Cold test	OK
22.	Operating voltage and frequency	230 V , 50 Hz	230 V , 50 Hz	OK
23.	Tolerance on operating voltage	$\pm$ 10 %	196 V to 253 V	OK



Signature

1 WEIGHING PERFORMANCE
DIGITAL WEIGHING MACHINE
 (Calculation of the error)

Date: 26.09.2025

DIGITAL WEIGHING MACHINE

Maximum Capacity =	2000 kg
Verification scale interval e =	200 g
Model Series	PPS - series
Brand Name	POINT
Machine Sl. No.	20251075

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_o$ with E_o = error calculated at near zero(*)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
2	2.0	2.0	100	100	0	0	--	--	100
4	4.0	4.0	120	120	-20	-20	-20	-20	
10	10.0	10.0	120	100	-20	0	-20	0	
50	50.0	50.0	100	100	0	0	0	0	
100	100.0	100.0	80	80	20	20	20	20	
250	250.0	250.0	80	100	20	0	20	0	200
400	400.0	400.0	100	80	0	20	0	20	
700	700.0	700.0	80	60	20	40	20	40	300
1000	1000.0	1000.0	60	60	40	40	40	40	
1500	1500.2	1500.2	160	180	140	120	140	120	
2000	2000.2		140		160		160		

Note: Non-linearity test.

- The error shown at Zero-load, half load and full load indicates the non-linearity test.
- The increasing and decreasing error indicates the Hysteresis error of the balance.

☒ Passed ☐ Failed

Remarks:



2 WEIGHING PERFORMANCE (Accuracy Test at Cold Temperature)

(Calculation of the error)

DIGITAL WEIGHING MACHINE

Date: 26.09.2025

Model Series	PPS - series
Brand Name	POINT
Maximum Capacity =	2000 kg
Verificationscale interval e:	200 g

The balance was kept at 0 °C for two hours as per IS: 9000 (Part2/Sec.4/1977)

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_o$ with E_o = error calculated at near zero(*)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
2	2.0	2.0	100	100	0	0	--	--	100
4	4.0	4.0	140	100	-40	0	-40	0	
50	50.0	50.0	120	120	-20	-20	-20	-20	
100	100.0	100.0	80	80	20	20	20	20	
250	250.0	250.0	80	80	20	20	20	20	200
400	400.0	400.0	60	80	40	20	40	20	
1000	1000.0	1000.0	60	60	40	40	40	40	300
1500	1500.2	1500.2	160	180	140	120	140	120	
2000	2000.2		180		120		120		

EUT is subjected to cold temperature at 0 °C for 2 hours.

2	2.0	2.0	120	100	-20	0	--	--	100
4	4.0	4.0	100	100	0	0	20	20	
50	50.0	50.0	120	60	-20	40	0	60	
100	100.0	100.0	100	80	0	20	20	40	
250	250.0	250.0	100	60	0	40	20	60	200
400	400.0	400.0	120	80	-20	20	0	40	
1000	1000.0	1000.0	100	80	0	20	20	40	300
1500	1500.2	1500.2	180	160	120	140	140	160	
2000	2000.2		160		140		160		

Note: Non-linearity test.

- The error shown at Zero-load, half load and full load indicates the non-linearity test.
- The increasing and decreasing error indicates the Hysteresis error of the balance.

☒ Passed ☐ Failed

Remarks:



3 WEIGHING PERFORMANCE (Accuracy Test at High Temperature)

(Calculation of the error)

DIGITAL WEIGHING MACHINE

Date: 29.09.2025

Model Series	PPS - series
Brand Name	POINT
Maximum Capacity =	2000 kg
Verificationscale interval e:	200 g

The balance was kept at 50 °C for two hours as per IS: 9000 (Part2/Sec.4/1977)

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_o$ with E_o = error calculated at near zero(*)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
2	2.0	2.0	100	100	0	0	--	--	100
4	4.0	4.0	100	100	0	0	0	0	
50	50.0	50.0	100	80	0	20	0	20	
100	100.0	100.0	100	100	0	0	0	0	
250	250.0	250.0	80	80	20	20	20	20	200
400	400.0	400.0	80	80	20	20	20	20	
1000	1000.0	1000.0	120	100	-20	0	-20	0	300
1500	1500.2	1500.2	140	180	160	120	160	120	
2000	2000.2		160		140		140		
EUT is subjected to High temperature at 50 oC for 2 hours.									
2	2.0	2.0	120	120	-20	-20	--	--	100
4	4.0	4.0	120	100	-20	0	0	20	
50	50.0	50.0	100	100	0	0	20	20	
100	100.0	100.0	140	120	-40	-20	-20	0	
250	250.0	250.0	80	80	20	20	40	40	200
400	400.0	400.0	80	80	20	20	40	40	
1000	1000.0	1000.0	100	100	0	0	20	20	300
1500	1500.2	1500.2	160	160	140	140	160	160	
2000	2000.2		120		180		200		

Note: Non-linearity test.

- The error shown at Zero-load, half load and full load indicates the non-linearity test.
- The increasing and decreasing error indicates the Hysteresis error of the balance.

☒ Passed ☐ Failed

Remarks:

[Signature]



[Signature]

4 TEMPERATURE EFFECT ON NO-LOAD INDICATION

DIGITAL WEIGHING MACHINE

Maximum Capacity =	2000 kg
Verification scale interval e =	200 g
Model Series	PPS - series
Brand Name	POINT

$$P = I + 1/2e - \Delta L$$

Report page (*)	Date	Time	Temp (°C)	Zero indication (kg)	Add.load (g)	P (kg)	ΔP (kg)	ΔTemp (°C)	Zero-change per 5°C (kg)
2	26.09.2025		22.7	2.0	100	2.000			
2	26.09.2025		0	2.0	120	1.980	-0.020	-22.7	0.00441
2	26.09.2025		0	2.0	120	1.980			
3	29.09.2025		50	2.0	100	2.000	0.020	50	0.00200
3	29.09.2025		50	2.0	100	2.000			
3	29.09.2025		23	2.0	120	1.980	-0.020	-27	0.00370

ΔP = difference of P for two consecutive tests at different temperatures

ΔTemp = difference of Temp for two consecutive tests at different temperatures

(*)

Check if the zero-change per 5 °C is smaller than e

☒ x

Passed

☐

Failed

Remarks



5 **ECCENTRICITY****DIGITAL WEIGHING MACHINE**

Date: 26.09.2025

3.1 Eccentricity using weights

Maximum Capacity =	2000 kg	Model Series	PPS - series
Verification scale interval e =	200 g	Brand Name	POINT

Location of test loads: mark on a sketch (see an example below) the successive location of test loads, using numbers which shall be repeated in the table below.

1	2
4	3

Also indicate in the sketch the location of the display or of another perceptible part of the instrument.

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_o$ with E_o = error calculated at or near zero* determined prior to each measurement

Location	Load L	Indication I	Add. Load ΔL	Error E	Corrected error E_c	mpe
	(kg)	(kg)	(g)	(*) (g)	(g)	($\pm g$)
1	2	2.0	120	-20		
	700	700.0	140	-40	-20	300
2	2	2.0	100	0		
	700	700.0	140	-40	-40	300
3	2	2.0	80	20		
	700	700.0	120	-20	-40	300
4	2	2.0	80	20		
	700	700.0	140	-40	-60	300

☒ Passed ☐ Failed

Remarks



6 DISCRIMINATION AND SENSITIVITY

Date: 26.09.2025

4.1 Discrimination
4.1.1 Digital indication

Model Series PPS - series
Model Brand Name POINT

Maximum Capacity =	2000	kg
Verification scale interval e =	200	g

Load	Indication I_1	Remove load ΔL	Add1/10d	Extra load $\approx 1.4d$	Indication I_2	$I_2 - I_1$
(kg)	(kg)	(g)	(g)	(g)	(kg)	(kg)
4+0.2	4.2	100	20	280	4.4	0.20
1000+0.2	1000.2	120	20	280	1000.4	0.20
2000+0.2	2000.4	140	20	280	2000.6	0.20

Check if $I_2 - I_1 = d$

☒ Passed ☐ Failed

Remarks



7 REPEATABILITY

DIGITAL WEIGHING MACHINE

Date: 30.09.2025

Maximum Capacity =	2000 kg	Model Series	PPS - series
Verification scale interval e =	200 g	Model Brand Name	POINT

load (weighing 1-10) Load (weighing 11-20)

$$E = I + 1/2 e - \Delta L - L$$

	Indication of load I (kg)	Add load ΔL (g)	E (g)
1	1000.0	100	0
2	1000.0	100	0
3	1000.0	120	-20
4	1000.0	80	20
5	1000.0	80	20
6	1000.0	60	40
7	1000.0	60	40
8	1000.0	100	0
9	1000.0	120	-20
10	1000.0	100	0

	Indication of load I (kg)	Add load ΔL (g)	E (g)
11	2000.2	120	180
12	2000.2	140	160
13	2000.2	140	160
14	2000.2	160	140
15	2000.2	120	180
16	2000.2	140	160
17	2000.2	160	140
18	2000.2	120	180
19	2000.2	100	200
20	2000.2	120	180

$E_{\max} - E_{\min}(\text{weighing 1-10})$ g
 mpe g

$E_{\max} - E_{\min}(\text{weighing 11-20})$ g
 mpe g

☒ Passed ☐ Failed

Remarks



8 TIME-DEPENDENCE

DIGITAL WEIGHING MACHINE

Date: 30.09.2025

8.1 Zero return

Maximum Capacity =	2000 kg	Model Series	PPS - series
Verification scale interval e =	200 g	Model Brand Name	POINT

$$P = I + 1/2 e - \Delta L$$

Time of reading	Load L_0	Indication of zero I_0	Add load ΔL	P
	(kg)	(kg)	(g)	(kg)
	0.0	0.0	120	-0.0200
After loading for 0.5 h Load = 2000 kg				
	0.0	0.0	100	0.0000

Change of
zero indication $(\Delta P) = 0.020$ kgCheck if $(\Delta P) \leq 0.5 e$ ☒ Passed ☐ Failed

Remarks



8 Creep

DIGITAL WEIGHING MACHINE

Date: 30.09.2025

8.2 Creep

Maximum Capacity =	2000 kg
Verification scale interval e =	200 g
Model Series	PPS - series
Model Brand Name	POINT

$$P = I + 1/2 e - \Delta L$$

Time of reading	Load L (kg)	Indication I (kg)	Add load ΔL (g)	P (kg)	ΔP (kg)
0 min	2000	2000.2	140	2000.160	
5 min	2000	2000.2	120	2000.180	0.020
15 min	2000	2000.2	120	2000.180	0.020
30 min	2000	2000.2	120	2000.180	0.020

(*)

1h					
2h					
3h					
4h					

ΔP = difference between P at the start (0 min) and P at a given time.

(*) If $(\Delta P) < 0.5 e$ during the first 30 min and if the variation of (dP) between 15 min and 30 min $< 0.2 e$, then the test is terminated. If not, the test shall continue for the next 3.5 hours. Check that during the total 4 hours: $(\Delta P) \leq mpe$

☒ Passed ☐ Failed

Remarks

(*)



9 TILTING

Date: 01.10.2025

DIGITAL WEIGHING MACHINE

Maximum Capacity =	2000 kg	Model Series	PPS - series
Verification scale interval e:	200 g	Model Brand Name	POINT

- ☐ Instrument with leveling device and level indicator
☐ Instrument with automatic tilt sensor
☒ Instrument without level indicator or automatic tilt sensor
☐ Mobile instrument with automatic tilt sensor
☐ Mobile instrument with Cardanic suspension

Limiting value of tilting = 5%

Give (If appropriate on separate sheet)

A skect of the load receptor showing the location of the level indicator, if provided.

 $E_v = I_v + 1/2 e - \Delta L_v - L$ ($V = 1, 2, 3, 4, 5$), I_v = Indication, ΔL_v = additional load

 $E_{cv} = E_v - E_{v0}$ with E_{v0} = error calculated near to zero

LOAD L (kg)		Reference position	Tilted position with limited value of tilt					
Unloaded (*)								
2.0	I_v (kg)	2.0	2.0	2.0	2.0	2.0		
	ΔL_v (g)	100	80	120	100	120	2e =	400 g
	E_{v0} (g)	0	20	-20	0	-20	$ E_{i0} - E_{v0} \text{ max}$	20.0
L = 1000	I_v (kg)	1000.0	1000.0	1000.0	1000.0	1000.0		
	ΔL_v (g)	140	120	100	120	140		
	E_v (g)	-40	-20	0	-20	-40	mpe =	300 g
	E_{cv} (g)	-40	-40	20	-20	-20	$ E_{cl} - E_{cv} \text{ max}$	60.0
Max = 2000	I_v (kg)	2000.2	2000.2	2000.2	2000.2	2000.2		
	ΔL_v (g)	120	160	100	140	120		
	E_v (g)	180	140	200	160	180	mpe =	300 g
	E_{cv} (g)	180	120	220	160	200	$ E_{cl} - E_{cv} \text{ max}$	60.0

Check if the differences are a) $\leq 2e$ for the unloaded instrument (not valid for class II instruments, if they are not used for direct sales to the public)

b) $\leq$ absolute value of mpe for the loaded instrument

☒ Passed

Failed

Remarks:



10 TARE (WEIGHING TEST)

DIGITAL WEIGHING MACHINE

Date: 01.10.2025

Maximum Capacity =	2000 kg
Verification scale interval e:	200 g
Model Series	PPS - series
Model Brand Name	POINT

$$E = I + 1/2 e - \Delta L - L$$

$$E_c = E - E_0 \text{ with } E_0 = \text{error calculated at or near zero (*)}$$

Tare weight = 500 kg					Tare Indication =0 kg					mpe (±g)
Load L (kg)	Indication (kg)		Add Load (g)		Error E (g)		Corrected error E ₀ (g)			
	↓	↑	↓	↑	↓	↑	↓	↑		
2	2.0	2.0	100	100	0	0	--	--	100	
4	4.0	4.0	100	100	0	0	0	0		
50	50.0	50.0	100	120	0	-20	0	-20		
100	100.0	100.0	100	120	0	-20	0	-20		
250	250.0	250.0	80	100	20	0	20	0	200	
400	400.0	400.0	80	60	20	40	20	40		
700	700.0	700.0	60	80	40	20	40	20	300	
1000	1000.0	1000.0	60	60	40	40	40	40		
1200	1200.2	1200.2	160	140	140	160	140	160		
1500	1500.2		180		120		120			
Tare weight = 1000 kg					Tare Indication = 0 kg					
	↓	↑	↓	↑	↓	↑	↓	↑		
2	2.0	2.0	120	120	-20	-20	--	--	100	
4	4.0	4.0	100	120	0	-20	20	0		
50	50.0	50.0	100	120	0	-20	20	0		
100	100.0	100.0	80	100	20	0	40	20		
250	250.0	250.0	80	100	20	0	40	20	200	
400	400.0	400.0	120	100	-20	0	0	20		
500	500.0	500.0	120	100	-20	0	0	20	300	
700	700.0	700.0	100	120	0	-20	20	0		
900	900.0	900.0	100	80	0	20	20	40		
1000	1000.2		160		140		160			

☒ Passed ☐ Failed

Remarks:



11 WARM - UP TIMES

DIGITAL WEIGHING MACHINE

Date: 06.10.2025

Maximum Capacity =	2000 kg	Model Series	PPS - series
Verification scale interval e:	200 g	Brand Name	POINT

$$E = I + 1/2 e - \Delta L - L$$

E_0 = error calculated at zero or near zero (unloaded)

E_L = error calculated at load (loaded)

	time (*)	Load (kg)	Indication (kg)	Add.load L (g)	Error (g)	EL - Eo (g)	mpe (±g)
Unloaded	0 min	2.0	2.0	100	0		
Loaded		2000	2000.2	180	120	120	300
Unloaded	5 min	2.0	2.0	80	20		
Loaded		2000	2000.2	140	160	140	300
Unloaded	15 min	2.0	2.0	120	-20		
Loaded		2000	2000.2	160	140	160	300
Unloaded	30 min	2.0	2.0	100	0		
Loaded		2000	2000.2	160	140	140	300

(*) Counted from the moment an indication has first appeared. Check that [EL - Eo] < mpe

(*)

☒ Passed ☐ Failed

Remarks



12 VARIATIONS OF VOLTAGE

Date: 07.10.2025

DIGITAL WEIGHING MACHINE

Maximum Capacity =	2000 kg	Model Series	PPS - series
Verification scale interval e:	200 g	Model Brand Name	POINT

Marked nominal voltage or voltage range: V

$$E = I + 1/2 e - \Delta L - L$$

 $E_c = E - E_o$ with E_o = error at zero or near zero (*)

Voltage	U (V)	Load L (kg)	Indication I (kg)	Add load ΔL (g)	Error E (g)	Corr.error E_c (g)	mpe ($\pm g$)
Reference value (**)	230	2.0	2.0	120	-20	-	
		1000	1000.2	180	120	140	300
" - 15%(**)	196	2.0	2.0	100	0	-	
		1000	1000.2	140	160	160	300
" + 10%(**)	253	2.0	2.0	100	0	-	
		1000	1000.2	120	180	180	300
Reference value(**)	230	2.0	2.0	80	20	-	
		1000	1000.2	140	160	140	300

☒ Passed ☐ Failed

 Remarks
 (*)


13 **FREQUENCY VARIATION TEST**

Date: 07.10.2025

Maximum Capacity =	2000 kg	Model Series	PPS - series
Verification scale interval e =	200 g	Model Brand Name	POINT

Marked nominal frequency:

50 Hz

$$E = I + 1/2 e - \Delta L - L$$

 $E_c = E - E_0$ with E_0 = error at zero or near zero (*)

Frequency Hz	Load L (kg)	Indication I (kg)	Add load ΔL (g)	Error E (g)	Corr.error E_c (g)	mpe (±g)
Reference value (50 Hz)	2.0	2.0	100	0	0	100
	2000	2000.2	120	180	180	300
- 2 % (49 Hz)	2.0	2.0	120	-20	-20	100
	2000	2000.2	100	200	200	300
+ 2 % (51 Hz)	2.0	2.0	100	0	0	100
	2000	2000.2	120	180	180	300
Reference value (50 Hz)	2.0	2.0	80	20	20	100
	2000	2000.2	160	140	140	300

x	Failed
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 Remarks
 (*)


14 DRY HEAT CYCLE TEST

DIGITAL WEIGHING MACHINE

at 50 °C for 16 hours tested as per IS: 9000 (part 3/Sec 5) 1977.

Date: 08.10.2025

Maximum (Maximum Capacity) =	2000 kg	Model Series	PPS - series
Verification scale interval e =	200 g	Model Brand Name	POINT

$$E = I + 1/2 e - \Delta L - L$$

$$E_c = E - E_o \text{ with } E_o = \text{error calculated at or near zero} (*)$$

a) Initial test (at reference temperature)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
2	2.0	2.0	120	80	-20	20	--	--	100
4	4.0	4.0	100	120	0	-20	20	0	
50	50.0	50.0	80	120	20	-20	40	0	
100	100.0	100.0	80	100	20	0	40	20	
250	250.0	250.0	100	120	0	-20	20	0	200
400	400.0	400.0	120	80	-20	20	0	40	
700	700.0	700.0	100	80	0	20	20	40	300
1000	1000.0	1000.0	100	100	0	0	20	20	
1500	1500.2	1500.2	180	120	120	180	140	200	
2000	2000.2		120		180		200		

b) Final test (after conditioning the instrument at 50 °C for 16 hours) :

Date: 09.10.2025

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
2	2.0	2.0	80	100	20	0	--	--	100
4	4.0	4.0	80	120	20	-20	0	-40	
50	50.0	50.0	120	140	-20	-40	-40	-60	
100	100.0	100.0	100	100	0	0	-20	-20	
250	250.0	250.0	100	100	0	0	-20	-20	200
400	400.0	400.0	140	120	-40	-20	-60	-40	
700	700.0	700.0	120	60	-20	40	-40	20	300
1000	1000.0	1000.0	60	80	40	20	20	0	
1500	1500.2	1500.2	140	160	160	140	140	120	
2000	2000.2		180		120		100		

☒ Passed ☐ Failed

Remarks:



15 DRIFT TEST DUE TO TEMPERATURE.

DIGITAL WEIGHING MACHINE

Maximum Capacity =

2000 kg

Verification scale interval e =

200 g

$P = I + 1/2 e - \Delta L$

Model Series

PPS - series

Model Brand Name

POINT

(a). LOW TEMPERATURE DRIFT:

Zero indication (kg)	Temp. °C	Additional Load applied (ΔL) (g)	P_1 (kg)	At rated load (kg)	Additional Load applied (ΔL) (g)	P_2 (kg)
2.0	24	100	2.000	2000.2	180	2000.120
2.0	0	120	1.980	2000.2	160	2000.140

Deviation at no load = $P_{24} - P_0 =$

0.02 kg

Deviation at rated load = $P_{24} - P_0 =$

0.020 kg

(a). HIGH TEMPERATURE DRIFT:

Zero indication (kg)	Temp. °C	Additional Load applied (ΔL) (g)	P_1 (kg)	At rated load (kg)	Additional Load applied (ΔL) (g)	P_2 (kg)
2.0	24	100	2.000	2000.2	160	2000.140
2.0	50	120	1.980	2000.2	120	2000.180

Deviation at no load = $P_{24} - P_{50} =$

0.02 kg

Deviation at rated load = $P_{24} - P_{50} =$

0.040 kg

☒ Passed

☐ Failed

Remarks:





क्षेत्रीय निर्देश मानक प्रयोगशाला
(विधिक माप विज्ञान)
Regional Reference Standards Laboratory
(Legal Metrology)

भारत सरकार

उपभोक्ता मामले, खाद्य और सार्वजनिक वितरण मंत्रालय
उपभोक्ता मामले विभाग
जक्कुर पोस्ट, बेंगलूरु - ५६० ०६४.

Government of India,

Ministry of Consumer Affairs, Food & Public Distribution
Department of Consumer Affairs
JAKKUR, BENGALURU - 560 064.

10(02)/RRSL/B/2022-23(227)/ 352

दिनांक/ Date.....12.12.2022.....

To,

M/s Yes Yes Technologies,
47/A, Rajaji Road, Ram Nagar,
Coimbatore – 641 009.

Subject: Forwarding of Type test reports of Electronic Weighing Systems as per specifications of IS-9281 (Pt 1&2)/1979, IS-9281 (Part-3)/1981 & IS 9281(Pt. 4)1983 (Reaffirmed 2006) - reg.

Sir,

With reference to your letter dated 23.08.2022 on the above mentioned subject, please find enclosed herewith following one type test reports of Electronic Weighing System under the Brand name of 'POINT' as per specifications of IS-9281 (Pt 1&2)/1979, IS-9281 (Part-3)/1981 & IS 9281(Pt. 4)1983 (Reaffirmed 2006).

1. Electronic Weighing System having capacity 300 kg, e-50 g, Accuracy Class- 1 for **PPS-300 Series**, Sl. No. – 20221785.
2. Electronic Weighing System having capacity 30 kg, e-5 g, Accuracy Class- 1 for **PTS-30 Series**, Sl. No. – 20221777.

The laboratory has also tested the sample for **Dry Heat Test** in accordance with IS:9000 (Part-3/Sec. 5/1977) (Reaffirmed 2004), **Damp Heat (Cyclic Test)** in accordance with IS:9000 (Part-5/ Sec.1/1981) (Reaffirmed 2004) and **Cold Test** in accordance with IS:9000 (Part-2/ Sec.4/1977) (Reaffirmed 2004). It is informd that the overall performance are satisfactory and confirm to the BIS specifications- IS-9281 (Pt 1&2)/1979, IS-9281 (Part-3)/1981 & IS 9281(Pt. 4)1983 (Reaffirmed 2006).

It is requested to acknowledge the receipt of the reports.

Yours Faithfully

(D K Verma)

Assistant Director, Legal Metrology

Encl: As Stated.

**Table –1 – Test results of Electronic Weighing Systems
of Maximum Capacity 300 kg and Scale division 50 g as per
Accuracy class 1 of IS-9281 (part III) –1981(Reaffirmed 2006)
Brand Name: POINT, Model No. PPS-300 - series;
Machine serial number: 20221785**

Sl. No.	Name of the test / parameters	Typical values / specification	Actual sample results	Remarks
01.	Rated load	300 kg	300 kg	OK
02.	Accuracy - class 1	± 0.05 % of RO	< 0.05 % of RO	OK
03.	Transducer excitation and distortion / regulation	As per mfr's specification	5 V DC	OK
04.	Non-linearity	± 0.05 % of RO	< 0.05 % of RO	OK
05.	Drift of no-load output with temperature	± 0.005 % of RO / degree cent.	< 0.005 % of RO	OK
06.	Drift of no-load output with time after 1 hour	± 0.015 % of RO	< 0.015 % of RO	OK
07.	Drift of full scale output with time after 1 hour	± 0.015 % of RO	< 0.015 % of RO	OK
08.	Internal calibration	As per mfr's specification	Not Provided	OK
09.	Number of scale division	As per mfr's specification	6000	OK
10.	Resolution	As per mfr's specification	50 g	OK
11.	Tare provisions	As per mfr's specification	Manual	OK
12.	Display	As per mfr's specification	LED	OK
13.	Recording	As per mfr's specification	Not Applicable	OK
14.	Speed of measurement	As per mfr's specification	100 milli- seconds	OK
15.	Overload indication	As per mfr's specification	Beyond 300.450 kg Display Shows 'OL'	OK
16.	Response to full scale	3 sec.	< 3 seconds	OK
17.	Operating temperature	As specified in IS: 1900 (part I) 1977 -Basic envrll. testing procedures	0 to 50°C	OK



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Sl. No.	Name of the test / parameters	Typical values / specification	Actual sample results	Remarks
18.	Warm up periods	60 min.	30 minutes	OK
19.	Weight	As per mfr's specification	21.100 kg $\pm$ 50 g	NA
20.	Dimensions	As per mfr's specification	PAN SIZE 500x500 mm	OK
21.	Environmental condition	As per IS-9000	Damp heat /Dry heat / Cold test	OK
22.	Operating voltage and frequency	230 V , 50 Hz	230 V , 50 Hz 6V- 4Ah rechargeable Battery	OK
23.	Tolerance on operating voltage	$\pm$ 10 %	196 V to 253 V	OK



1 WEIGHING PERFORMANCE

(Calculation of the error)

Date: 04.11.2022

DIGITAL WEIGHING MACHINE

Maximum Capacity = 300 kg
 Verification scale interval e = 50 g
 Model Series PPS-300 - series
 Model Brand Name POINT

Machine Sl. No. 20221785

$$E = I + 1/2 e - \Delta L - L$$

$E_n = E - E_o$ with E_o = error calculated at near zero(*)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (E_c) (g)		mpe ($\pm g$)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.5	0.50	0.50	25	25	0	0	--	--	
1	1.00	1.00	30	15	-5	10	-5	10	25
10	10.00	10.00	30	20	-5	5	-5	5	
25	25.00	25.00	25	25	0	0	0	0	
50	50.00	50.00	35	20	-10	5	-10	5	
75	75.00	75.00	20	35	5	-10	5	-10	50
100	100.00	100.00	35	35	-10	-10	-10	-10	
150	150.00	150.00	30	30	-5	-5	-5	-5	
200	200.00	200.00	20	30	5	-5	5	-5	
250	250.00	250.00	40	35	-15	-10	-15	-10	75
300	300.05		45		30		30		

Note: Non-linearity test.

- The error shown at Zero-load, half load and full load indicates the non-linearity test.
- The increasing and decreasing error indicates the Hysteresis error of the balance.

☒ Passed ☐ Failed

Remarks:



[Handwritten signature]

2 WEIGHING PERFORMANCE (Accuracy Test at Cold Temperature)

(Calculation of the error)

Date: 07.11.2022

DIGITAL WEIGHING MACHINE

Maximum Capacity = 300 kg

Verificationscale interval e: 50 g

The balance was kept at 0 °C for two hours as per IS: 9000 (Part2/Sec.4/1977)

$$E = I + 1/2 e - \Delta L - L$$

$E_n = E - E_o$ with E_o = error calculated at near zero(*)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.5	0.50	0.50	30	20	-5	5	--	--	25
1	1.00	1.00	25	15	0	10	5	15	
10	10.00	10.00	25	25	0	0	5	5	
25	25.00	25.00	20	20	5	5	10	10	
50	50.00	50.00	15	35	10	-10	15	-5	50
100	100.00	100.00	20	35	5	-10	10	-5	
200	200.00	200.00	35	30	-10	-5	-5	0	75
250	250.00	250.00	40	45	-15	-20	-10	-15	
300	300.05		45		30		35		
EUT is subjected to cold temperature at 0 °C for 2 hours.									
0.5	0.50	0.50	25	25	0	0	--	--	25
1	1.00	1.00	25	20	0	5	0	5	
10	10.00	10.00	30	30	-5	-5	-5	-5	
25	25.00	25.00	30	35	-5	-10	-5	-10	
50	50.00	50.00	15	30	10	-5	10	-5	50
100	100.00	100.00	20	25	5	0	5	0	
200	200.00	200.00	20	25	5	0	5	0	75
250	250.00	250.00	40	35	-15	-10	-15	-10	
300	300.05		40		35		35		

Note: Non-linearity test.

- The error shown at Zero-load, half load and full load indicates the non-linearity test.
- The increasing and decreasing error indicates the Hysteresis error of the balance.

☒ Passed ☐ Failed

Remarks:



3 WEIGHING PERFORMANCE (Accuracy Test at High Temperature)

(Calculation of the error)

Date: 09.11.2022

DIGITAL WEIGHING MACHINE

Maximum Capacity = 300 kg

Verification scale interval e: 50 g

The balance was kept at 50 °C for two hours as per IS: 9000 (Part2/Sec.4/1977)

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_o$ with E_o = error calculated at near zero(*)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (E_c) (g)		mpe ($\pm g$)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.5	0.50	0.50	25	25	0	0	--	--	25
1	1.00	1.00	20	15	5	10	5	10	
10	10.00	10.00	30	20	-5	5	-5	5	
25	25.00	25.00	25	25	0	0	0	0	
50	50.00	50.00	25	35	0	-10	0	-10	50
100	100.00	100.00	35	20	-10	5	-10	5	
200	200.00	200.00	30	15	-5	10	-5	10	75
250	250.00	250.00	40	40	-15	-15	-15	-15	
300	300.05		45		30		30		
EUT is subjected to High temperature at 50 oC for 2 hours.									
0.5	0.50	0.50	25	25	0	0	--	--	25
1	1.00	1.00	20	20	5	5	5	5	
10	10.00	10.00	20	15	5	10	5	10	
25	25.00	25.00	25	25	0	0	0	0	
50	50.00	50.00	30	30	-5	-5	-5	-5	50
100	100.00	100.00	15	3	10	22	10	22	
200	200.00	200.00	20	25	5	0	5	0	75
250	250.00	250.00	35	40	-10	-15	-10	-15	
300	300.05		40		35		35		

Note: Non-linearity test.

- The error shown at Zero-load, half load and full load indicates the non-linearity test.
- The increasing and decreasing error indicates the Hysteresis error of the balance.

☒ Passed ☐ Failed

Remarks:

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4 TEMPERATURE EFFECT ON NO-LOAD INDICATION

Maximum Capacity = 300 kg
 Verification scale interval e = 50 g

$$P = I + 1/2e - \Delta L$$

Report page (*)	Date	Time	Temp (°C)	Zero indication (kg)	Add.load (g)	P (kg)	ΔP (kg)	$\Delta Temp$ (°C)	Zero-change per 5°C (kg)
2	07.11.2022		22.7	0.50	30	0.495			
2	07.11.2022		0	0.50	25	0.500	0.005	-22.7	-0.00110
2	07.11.2022		0	0.50	25	0.500			
3	09.11.2022		50	0.50	25	0.500	0.000	50	0.00000
3	09.11.2022		50	0.50	25	0.500			
3	09.11.2022		23	0.50	25	0.500	0.000	-27	0.00000

ΔP = difference of P for two consecutive tests at different temperatures

$\Delta Temp$ = difference of Temp for two consecutive tests at different temperatures

(*)

Check if the zero-change per 5 °C is smaller than e

☒ x

Passed

☐

Failed

Remarks

[Handwritten signature]



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5 ECCENTRICITY

Date: 10.11.2022

3.1 Eccentricity using weights

Maximum Capacity = 300 kg
Verification scale interval = 50 g

Location of test loads: mark on a sketch (see an example below) the successive location of test loads, using numbers which shall be repeated in the table below.

1	2
4	3

Also indicate in the sketch the location of the display or of another perceptible part of the instrument.

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_o$ with E_o = error calculated at or near zero* determined prior to each measurement

Location	Load L (kg)	Indication I (kg)	Add. Load ΔL (g)	Error E (*) (g)	Corrected error E_c (g)	mpe ($\pm g$)
1	0.5	0.50	30	-5		
	100	100.00	25	0	5	50
2	0.5	0.50	25	0		
	100	100.00	30	-5	-5	50
3	0.5	0.50	35	-10		
	100	100.00	15	10	20	50
4	0.5	0.50	20	5		
	100	100.00	20	5	0	50

☒ Passed ☐ Failed

Remarks

102



2f

6 DISCRIMINATION AND SENSITIVITY

Date: 10.11.2022

- 4.1 Discrimination
4.1.1 Digital indication

Maximum Capacity = 300 kg
Verification scale interval e : 50 g

Load	Indication I_1	Remove load ΔL	Add 1/10d	Extra load $=1.4d$	Indication I_2	$I_2 - I_1$
(kg)	(kg)	(g)	(g)	(g)	(kg)	(kg)
1+0.05	1.05	30	5	70	1.10	0.05
150+0.05	150.05	25	5	70	150.10	0.05
300+0.05	300.10	20	5	70	300.15	0.05

Check if $I_2 - I_1 = d$

☒ Passed ☐ Failed

Remarks



7 REPEATABILITY

Date: 11.11.2022

Maximum Capacity = 300 kg
 Verification scale interval $e =$ 50 g

load (weighing 1-10) 150 kg

$$E = I + 1/2 e - \Delta L - L$$

	Indication of load I (kg)	Add load ΔL (g)	E (g)
1	150.00	35	-10
2	150.00	20	5
3	150.00	20	5
4	150.00	15	10
5	150.00	35	-10
6	150.00	20	5
7	150.00	25	0
8	150.00	35	-10
9	150.00	30	-5
10	150.00	25	0

$E_{\max} - E_{\min}$ (weighing 1-10) 20
 g
 mpe 75 g

☒ Passed ☐ Failed

Remarks



Load (weighing 11-20) 300 kg

	Indication of load I (kg)	Add load ΔL (g)	E (g)
11	300.05	35	40
12	300.05	40	35
13	300.05	40	35
14	300.05	35	40
15	300.05	30	45
16	300.05	45	30
17	300.05	45	30
18	300.05	35	40
19	300.05	40	35
20	300.05	45	30

$E_{\max} - E_{\min}$ (weighing 11-20) 15
 g
 mpe 75 g




8 TIME-DEPENDENCE

Date: 14.11.2022

8.1 Zero return

Maximum Capacity = 300 kg

Verification scale interval $e =$ 50 g

$$P = I + 1/2 e - \Delta L$$

Time of reading	Load L_0	Indication of zero I_0	Add load ΔL	P
	(kg)	(kg)	(g)	(kg)
	0.0	0.00	30	-0.0050
After loading for 0.5 h Load = 300 kg				
	0.0	0.00	20	0.0050

Change of zero indication

 $(\Delta P) =$ 0.010 kgCheck if $(\Delta P) \leq 0.5 e$
☒ Passed ☐ Failed

Remarks



8 Creep

Date: 14.11.2022

8.2 Creep

Maximum Capacity = 300 kg
Verification scale interval $e = 50 \text{ g}$

$$P = I + 1/2 e - \Delta L$$

Time of reading	Load L (kg)	Indication I (kg)	Add load ΔL (g)	P (kg)	ΔP (kg)
0 min	300	300.05	45	300.030	
5 min	300	300.05	45	300.030	0.000
15 min	300	300.05	40	300.035	0.005
30 min	300	300.05	40	300.035	0.005

(*)

1h					
2h					
3h					
4h					

ΔP = difference between P at the start (0 min) and P at a given time.

(*) If $(\Delta P) < 0.5 e$ during the first 30 min and if the variation of (dP) between 15 min and 30 min $< 0.2 e$, then the test is terminated. If not, the test shall continue for the next 3.5 hours. Check that during the total 4 hours: $(\Delta P) \leq mpe$

☒ Passed ☐ Failed

Remarks
(*)







9 TILTING

Date: 15.11.2022

Maximum Capacity = 300 kg
Verification scale interval e: 50 g

- ☐ Instrument with leveling device and level indicator
- ☐ Instrument with automatic tilt sensor
- ☒ Instrument without level indicator or automatic tilt sensor
- ☐ Mobile instrument with automatic tilt sensor
- ☐ Mobile instrument with Cardanic suspension

Limiting value of tilting = 5%

Give (If appropriate on separate sheet)
A skect of the load receptor showing the location of the level indicator, if provided.

$E_v = I_v + 1/2 e - \Delta L_v - L$ ($V= 1,2,3,4,5$), I_v = Indication, ΔL_v = additional load
 $E_{cv} = E_v - E_{vn}$ with E_{vn} = error calculated near to zero

LOAD L (kg)		Reference position	Tilted position with limited value of tilt							
										
Unloaded (*)										
0.5	I_v (kg)	0.50	0.50	0.50	0.50	0.50				
	ΔL_v (g)	30	25	20	35	20	$2e =$	100 g		
	E_{vn} (g)	-5	0	5	-10	5	$ E_{vn} - E_{vn} \max$	10.0		
									g	
L = 150	I_v (kg)	150.00	150.00	150.00	150.00	150.00				
	ΔL_v (g)	25	35	15	35	20				
	E_v (g)	0	-10	10	-10	5	mpe =	75 g		
	E_{cv} (g)	5	-10	5	0	0	$ E_{cv} - E_{cv} \max$	15.0		
									g	
Max = 300	I_v (kg)	300.05	300.05	300.05	300.05	300.05				
	ΔL_v (g)	45	35	40	50	45				
	E_v (g)	30	40	35	25	30	mpe =	75 g		
	E_{cv} (g)	35	40	30	35	25	$ E_{cv} - E_{cv} \max$	10.0		

Check if the differences are a) $\leq 2 e$ for the unloaded instrument (not valid for class II instruments, if they are not used for direct sales to the public)
b) $\leq$ absolute value of mpe for the loaded instrument

☒ Passed Failed

Remarks:



10 TARE (WEIGHING TEST)

Date: 16.11.2022

Maximum Capacity = 300 kg
 Verification scale interval e: 50 g

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_0$ with E_0 = error calculated at or near zero (*)

Tare weight = 60 kg					Tare Indication = -60.00 kg				
Load L (kg)	Indication (kg)		Add Load (g)		Error E (g)		Corrected error E ₀ (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.5	0.50	0.50	25	25	0	0	--	--	25
1	1.00	1.00	25	20	0	5	0	5	
10	10.00	10.00	30	25	-5	0	-5	0	
25	25.00	25.00	30	35	-5	-10	-5	-10	
50	50.00	50.00	25	30	0	-5	0	-5	50
75	75.00	75.00	15	30	10	-5	10	-5	
100	100.00	100.00	20	30	5	-5	5	-5	
150	150.00	150.00	35	25	-10	0	-10	0	75
200	200.00	200.00	15	20	10	5	10	5	
240	240.05		45		30		30		
Tare weight = 150 kg					Tare Indication = -150.00 kg				
0.5	0.50	0.50	30	15	-5	10	--	--	25
1	1.00	1.00	30	25	-5	0	0	5	
10	10.00	10.00	25	30	0	-5	5	0	
25	25.00	25.00	20	35	5	-10	10	-5	
50	50.00	50.00	15	35	10	-10	15	-5	50
75	75.00	75.00	20	20	5	5	10	10	
100	100.00	100.00	35	15	-10	10	-5	15	
120	120.00	120.00	25	25	0	0	5	5	75
140	140.00	140.00	30	20	-5	5	0	10	
150	150.00		25		0		5		

☒ Passed ☐ Failed

Remarks:



11 WARM - UP TIMES

Date: 17.11.2022

Maximum Capacity = 300 kg

Verification scale interval e: 50 g

$$E = I + 1/2 e - \Delta L - L$$

E_0 = error calculated at zero or near zero (unloaded)

E_L = error calculated at load (loaded)

	time (*)	Load (kg)	Indication (kg)	Add.load L (g)	Error (g)	EL - Eo (g)	mpe (±g)
Unloaded	0 min	0.5	0.50	25	0		
Loaded		300	300.05	45	30	30	75
Unloaded	5 min	0.5	0.50	20	5		
Loaded		300	300.05	45	30	25	75
Unloaded	15 min	0.5	0.50	25	0		
Loaded		300	300.05	45	30	30	75
Unloaded	30 min	0.5	0.50	20	5		
Loaded		300	300.05	40	35	30	75

(*) Counted from the moment an indication has first appeared. Check that [EL - Eo] < mpe

(*)

☒ Passed ☐ Failed

Remarks

108

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12 VARIATIONS OF VOLTAGE

Date: 17.11.2022

Maximum Capacity = 300 kg
Verification scale interval e: 50 g

Marked nominal voltage or voltage range: 230 V

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_0$ with E_0 = error at zero or near zero (*)

Voltage	U (V)	Load L (kg)	Indication I (kg)	Add load ΔL (g)	Error E (g)	Corr.error E_0 (g)	mpe ($\pm g$)
Reference value (**)	230	0.5	0.50	30	-5	-	
		300	300.05	40	35	40	75
" - 15%(**)	196	0.5	0.50	25	0	-	
		300	300.05	45	30	30	75
" + 10%(**)	253	0.5	0.50	20	5	-	
		300	300.05	40	35	30	75
Reference value(**)	230	0.5	0.50	35	-10	-	
		300	300.05	45	30	40	75

☒ Passed ☐ Failed

Remarks
(*)



13 **FREQUENCY VARIATION TEST**

Date: 17.11.2022

Maximum Capacity = 300 kg

Verification scale interval $e =$ 50 g

Marked nominal frequency: 50 Hz

$$E = I + 1/2 e - \Delta L - L$$

$E_n = E - E_n$ with E_n = error at zero or near zero (*)

Frequency Hz	Load L (kg)	Indication I (kg)	Add load ΔL (g)	Error E (g)	Corr.error E_n (g)	mpe ($\pm g$)
Reference value (50 Hz)	0.5	0.50	30	-5	0	25
	300	300.05	45	30	35	75
- 2 % (49 Hz)	0.5	0.50	30	-5	0	25
	300	300.05	45	30	35	75
+ 2 % (51 Hz)	0.5	0.50	25	0	5	25
	300	300.05	45	30	35	75
Reference value (50 Hz)	0.5	0.50	20	5	10	25
	300	300.05	40	35	40	75

x Failed

Remarks
(*)

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✓



14 DRY HEAT CYCLE TEST

at 50 °C for 16 hours tested as per IS: 9000 (part 3/Sec 5) 1977.

Date: 18.11.2022

Maximum (Maximum Capacity = 300 kg
Verification scale inter 50 g

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_o$ with E_o = error calculated at or near zero(*)

a) Initial test (at reference temperature)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.5	0.50	0.50	30	20	-5	5	--	--	25
1	1.00	1.00	25	25	0	0	5	5	
10	10.00	10.00	20	30	5	-5	10	0	
25	25.00	25.00	15	25	10	0	15	5	
50	50.00	50.00	30	30	-5	-5	0	0	50
75	75.00	75.00	25	35	0	-10	5	-5	
100	100.00	100.00	35	20	-10	5	-5	10	
200	200.00	200.00	20	15	5	10	10	15	75
250	250.00	250.00	40	35	-15	-10	-10	-5	
300	300.05		45		30		35		

b) Final test (after conditioning the instrument at 50 °C for 16 hours) :

Date: 21.11.2022

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.5	0.50	0.50	25	25	0	0	--	--	25
1	1.00	1.00	20	20	5	5	5	5	
10	10.00	10.00	20	20	5	5	5	5	
25	25.00	25.00	20	15	5	10	5	10	
50	50.00	50.00	35	30	-10	-5	-10	-5	50
75	75.00	75.00	30	30	-5	-5	-5	-5	
100	100.00	100.00	25	25	0	0	0	0	
200	200.00	200.00	15	25	10	0	10	0	75
250	250.00	250.00	35	45	-10	-20	-10	-20	
300	300.05		40		35		35		

☒ Passed ☐ Failed

Remarks:

78



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15 DRIFT TEST DUE TO TEMPERATURE.

$$P = I + 1/2 e - \Delta L$$

Date: 22.11.2022

(a). LOW TEMPERATURE DRIFT:

Zero indication (kg)	Temp. °C	Additional Load applied (ΔL) (g)	P ₁ (kg)	At rated load (kg)	Additional Load applied (ΔL) (g)	P ₂ (kg)	P ₂ - P ₁ (kg)
0.50	24	25	0.500	300.05	35	300.040	299.540
0.50	0	25	0.500	300.05	40	300.035	299.535

Deviation at no load = $P_{\gamma_d} - P_0 = 0$ g

Deviation at rated load = $P_{\gamma_d} - P_0 = 5$ g

Date: 23.11.2022

(a). HIGH TEMPERATURE DRIFT:

Zero indication (kg)	Temp. °C	Additional Load applied (ΔL) (g)	P ₁ (kg)	At rated load (kg)	Additional Load applied (ΔL) (g)	P ₂ (kg)	P ₂ - P ₁ (kg)
0.50	24	25	0.500	300.05	30	300.045	299.545
0.50	50	20	0.505	300.05	35	300.040	299.540

Deviation at no load = $P_{\gamma_d} - P_{s0} = 5$ g

Deviation at rated load = $P_{\gamma_d} - P_{s0} = 5$ g

☒ Passed ☐ Failed

Remarks:

[Handwritten signature]



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क्षेत्रीय निर्देश मानक प्रयोगशाला (विधिक माप विज्ञान)

Regional Reference Standards Laboratory (Legal Metrology)

भारत सरकार

उपभोक्ता मामले, खाद्य और सार्वजनिक वितरण मंत्रालय
उपभोक्ता मामले विभाग
जक्कुर पोस्ट, बेंगलूरु - ५६० ०६४.

Government of India,

Ministry of Consumer Affairs, Food & Public Distribution
Department of Consumer Affairs
JAKKUR, BENGALURU - 560 064.

10(02)/RRSL/B/2022-23(227)/ 352

दिनांक/ Date.....12.12.2022.....

To,

M/s Yes Yes Technologies,
47/A, Rajaji Road, Ram Nagar,
Coimbatore – 641 009.

Subject: Forwarding of Type test reports of Electronic Weighing Systems as per specifications of IS-9281 (Pt 1&2)/1979, IS-9281 (Part-3)/1981 & IS 9281(Pt. 4)1983 (Reaffirmed 2006) - reg.

Sir,

With reference to your letter dated 23.08.2022 on the above mentioned subject, please find enclosed herewith following one type test reports of Electronic Weighing System under the Brand name of 'POINT' as per specifications of IS-9281 (Pt 1&2)/1979, IS-9281 (Part-3)/1981 & IS 9281(Pt. 4)1983 (Reaffirmed 2006).

1. Electronic Weighing System having capacity 300 kg, e-50 g, Accuracy Class- 1 for **PPS-300 Series**, Sl. No. – 20221785.
2. Electronic Weighing System having capacity 30 kg, e-5 g, Accuracy Class- 1 for **PTS-30 Series**, Sl. No. – 20221777.

The laboratory has also tested the sample for **Dry Heat Test** in accordance with IS:9000 (Part-3/Sec. 5/1977) (Reaffirmed 2004), **Damp Heat (Cyclic Test)** in accordance with IS:9000 (Part-5/ Sec.1/1981) (Reaffirmed 2004) and **Cold Test** in accordance with IS:9000 (Part-2/ Sec.4/1977) (Reaffirmed 2004). It is informd that the overall performance are satisfactory and confirm to the BIS specifications- IS-9281 (Pt 1&2)/1979, IS-9281 (Part-3)/1981 & IS 9281(Pt. 4)1983 (Reaffirmed 2006).

It is requested to acknowledge the receipt of the reports.

Yours Faithfully

(D K Verma)

Assistant Director, Legal Metrology

Encl: As Stated.

**Table -1 – Test results of Electronic Weighing Systems
of Maximum Capacity 30 kg and Scale division 5 g as per Accuracy
class 1 of IS-9281 (part III) –1981(Reaffirmed 2006) Brand Name:
POINT, Model No. PTS-30 - series;
Machine serial number: 20221777**

Sl. No.	Name of the test / parameters	Typical values / specification	Actual sample results	Remarks
01.	Rated load	30 kg	30 kg	OK
02.	Accuracy - class 1	± 0.05 % of RO	< 0.05 % of RO	OK
03.	Transducer excitation and distortion / regulation	As per mfr's specification	5 V DC	OK
04.	Non-linearity	± 0.05 % of RO	< 0.05 % of RO	OK
05.	Drift of no-load output with temperature	± 0.005 % of RO / degree cent.	< 0.005 % of RO	OK
06.	Drift of no-load output with time after 1 hour	± 0.015 % of RO	< 0.015 % of RO	OK
07.	Drift of full scale output with time after 1 hour	± 0.015 % of RO	< 0.015 % of RO	OK
08.	Internal calibration	As per mfr's specification	Not Provided	OK
09.	Number of scale division	As per mfr's specification	6000	OK
10.	Resolution	As per mfr's specification	5 g	OK
11.	Tare provisions	As per mfr's specification	Manual	OK
12.	Display	As per mfr's specification	LED	OK
13.	Recording	As per mfr's specification	Not Applicable	OK
14.	Speed of measurement	As per mfr's specification	100 milli- seconds	OK
15.	Overload indication	As per mfr's specification	Beyond 30.045 kg Display Shows 'OL'	OK
16.	Response to full scale	3 sec.	< 3 seconds	OK
17.	Operating temperature	As specified in IS: 1900 (part I) 1977 -Basic envrll. testing procedures	0 to 50°C	OK



Sl. No.	Name of the test / parameters	Typical values / specification	Actual sample results	Remarks
18.	Warm up periods	60 min.	30 minutes	OK
19.	Weight	As per mfr's specification	7.960 kg $\pm$ 10 g	NA
20.	Dimensions	As per mfr's specification	PAN SIZE 350x300 mm	OK
21.	Environmental condition	As per IS-9000	Damp heat /Dry heat / Cold test	OK
22.	Operating voltage and frequency	230 V , 50 Hz	230 V , 50 Hz 6V- 4Ah rechargeable Battery	OK
23.	Tolerance on operating voltage	$\pm$ 10 %	196 V to 253 V	OK

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A handwritten signature in blue ink, appearing to be "J. S. Rm".

1 WEIGHING PERFORMANCE

(Calculation of the error)

Date: 04.11.2022

DIGITAL WEIGHING MACHINE

Maximum Capacity = 30 kg
Verification scale interval e = 5 g
Model Series PTS- 30
Model Brand Name POINT

Machine Sl. No. 20221777

$$E = I + 1/2 e - \Delta L - L$$

$E_o = E - E_o$ with E_o = error calculated at near zero(*)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.05	0.050	0.050	2.5	2.0	0.0	0.5	--	--	
0.1	0.100	0.100	2.0	3.5	0.5	-1.0	0.5	-1.0	
1	1.000	1.000	2.0	2.0	0.5	0.5	0.5	0.5	2.5
2.5	2.500	2.500	2.5	1.5	0.0	1.0	0.0	1.0	
5	5.000	5.000	3.5	2.0	-1.0	0.5	-1.0	0.5	
8	8.000	8.000	3.0	2.0	-0.5	0.5	-0.5	0.5	5.0
10	10.000	10.000	2.5	2.5	0.0	0.0	0.0	0.0	
15	15.000	15.000	1.0	2.5	1.5	0.0	1.5	0.0	
20	20.000	20.000	1.5	2.0	1.0	0.5	1.0	0.5	
25	25.005	25.005	3.5	4.5	4.0	3.0	4.0	3.0	7.5
30	30.005		4.0		3.5		3.5		

Note: Non-linearity test.

- The error shown at Zero-load, half load and full load indicates the non-linearity test.
- The increasing and decreasing error indicates the Hysteresis error of the balance.

☒ Passed ☐ Failed

Remarks:



2 WEIGHING PERFORMANCE (Accuracy Test at Cold Temperature)

(Calculation of the error)

Date: 07.11.2022

DIGITAL WEIGHING MACHINE

Maximum Capacity = 30 kg

Verificationscale interval e: 5 g

The balance was kept at 0 °C for two hours as per IS: 9000 (Part2/Sec.4/1977)

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_o$ with E_o = error calculated at near zero(*)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.05	0.050	0.050	2.5	2.0	0.0	0.5	--	--	2.5
0.1	0.100	0.100	2.0	2.5	0.5	0.0	0.5	0.0	
1	1.000	1.000	2.0	3.5	0.5	-1.0	0.5	-1.0	
2.5	2.500	2.500	2.5	3.0	0.0	-0.5	0.0	-0.5	
5	5.000	5.000	3.0	1.5	-0.5	1.0	-0.5	1.0	5.0
10	10.000	10.000	3.0	2.0	-0.5	0.5	-0.5	0.5	
15	15.000	15.000	2.5	2.0	0.0	0.5	0.0	0.5	7.5
20	20.000	20.000	1.5	2.5	1.0	0.0	1.0	0.0	
30	30.005		4.5		3		3		
EUT is subjected to cold temperature at 0 °C for 2 hours.									
0.05	0.050	0.050	2.0	2.5	0.5	0.0	--	--	2.5
0.1	0.100	0.100	2.5	2.5	0.0	0.0	-0.5	-0.5	
1	1.000	1.000	3.0	1.5	-0.5	1.0	-1.0	0.5	
2.5	2.500	2.500	3.0	2.0	-0.5	0.5	-1.0	0.0	
5	5.000	5.000	2.5	2.0	0.0	0.5	-0.5	0.0	5.0
10	10.000	10.000	1.5	1.5	1.0	1.0	0.5	0.5	
15	15.000	15.000	2.0	2.0	0.5	0.5	0.0	0.0	7.5
20	20.000	20.000	2.5	3.0	0.0	-0.5	-0.5	-1.0	
30	30.005		4.0		3.5		3.0		

Note: Non-linearity test.

- The error shown at Zero-load, half load and full load indicates the non-linearity test.
- The increasing and decreasing error indicates the Hysteresis error of the balance.

☒ Passed ☐ Failed

Remarks:

[Signature]



[Signature]

3 WEIGHING PERFORMANCE (Accuracy Test at High Temperature)

(Calculation of the error)

Date: 09.11.2022

DIGITAL WEIGHING MACHINE

Maximum Capacity = 30 kg

Verification scale interval e: 5 g

The balance was kept at 50 °C for two hours as per IS: 9000 (Part2/Sec.4/1977)

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_o$ with E_o = error calculated at near zero(*)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.05	0.050	0.050	2.5	2.0	0.0	0.5	--	--	2.5
0.1	0.100	0.100	3.0	3.0	-0.5	-0.5	-0.5	-0.5	
1	1.000	1.000	3.0	2.5	-0.5	0.0	-0.5	0.0	
2.5	2.500	2.500	1.5	2.0	1.0	0.5	1.0	0.5	
5	5.000	5.000	2.0	1.5	0.5	1.0	0.5	1.0	5.0
10	10.000	10.000	2.5	2.5	0.0	0.0	0.0	0.0	
15	15.000	15.000	3.0	2.0	-0.5	0.5	-0.5	0.5	7.5
20	20.000	20.000	2.5	3.0	0.0	-0.5	0.0	-0.5	
30	30.005		4.5		3.0		3.0		
EUT is subjected to High temperature at 50 oC for 2 hours.									
0.05	0.050	0.050	3.0	2.0	-0.5	0.5	--	--	2.5
0.1	0.100	0.100	2.0	2.5	0.5	0.0	1.0	0.5	
1	1.000	1.000	1.5	2.0	1.0	0.5	1.5	1.0	
2.5	2.500	2.500	1.5	1.5	1.0	1.0	1.5	1.5	
5	5.000	5.000	2.0	2.0	0.5	0.5	1.0	1.0	5.0
10	10.000	10.000	2.0	2.0	0.5	0.5	1.0	1.0	
15	15.000	15.000	2.5	1.5	0.0	1.0	0.5	1.5	7.5
20	20.000	20.000	3.0	2.5	-0.5	0.0	0.0	0.5	
30	30.005		4.0		3.5		4.0		

Note: Non-linearity test.

- The error shown at Zero-load, half load and full load indicates the non-linearity test.
- The increasing and decreasing error indicates the Hysteresis error of the balance.

☒ Passed ☐ Failed

Remarks:

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4 TEMPERATURE EFFECT ON NO-LOAD INDICATION

Maximum Capacity = 30 kg
Verification scale interval e = 5 g

$$P = I + 1/2e - \Delta L$$

Report page (*)	Date	Time	Temp (°C)	Zero indication (kg)	Add.load ΔL (g)	P (kg)	ΔP (kg)	$\Delta Temp$ (°C)	Zero-change per 5°C (kg)
2	07.11.2022		22.7	0.050	2.5	0.05000			
2	07.11.2022		0	0.050	2.0	0.05050	0.0005	-22.7	-0.00011
2	07.11.2022		0	0.050	2.0	0.05050			
3	09.11.2022		50	0.050	2.5	0.05000	-0.0005	50	-0.00005
3	09.11.2022		50	0.050	2.5	0.05000			
3	09.11.2022		23	0.050	3.0	0.04950	-0.0005	-27	0.00009

ΔP = difference of P for two consecutive tests at different temperatures
 $\Delta Temp$ = difference of Temp for two consecutive tests at different temperatures
(*)
Check if the zero-change per 5 °C is smaller than e

☒ Passed ☐ Failed

Remarks



5 **ECCENTRICITY**

Date: 10.11.2022

3.1 Eccentricity using weights

Maximum Capacity = 30 kg
 Verification scale inter 5 g

Location of test loads: mark on a sketch (see an example below) the successive location of test loads, using numbers which shall be repeated in the table below.

1	2
4	3

Also indicate in the sketch
 the location of the display
 or of another perceptible
 part of the instrument.

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_0$ with E_0 = error calculated at or near zero* determined prior to each measurement

Location	Load L (kg)	Indication I (kg)	Add. Load ΔL (g)	Error E (*) (g)	Corrected error E_c (g)	mpe ($\pm g$)
1	0.05	0.050	2.0	0.5		
	10	10.000	3.5	-1.0	-1.5	5.0
2	0.05	0.050	2.0	0.5		
	10	10.000	1.5	1.0	0.5	5.0
3	0.05	0.050	2.5	0.0		
	10	10.000	3.0	-0.5	-0.5	5.0
4	0.05	0.050	1.5	1.0		
	10	10.000	2.0	0.5	-0.5	5.0

☒ Passed ☐ Failed

Remarks



6 **DISCRIMINATION AND SENSITIVITY**

Date: 10.11.2022

- 4.1 Discrimination
4.1.1 Digital indication

Maximum Capacity = 30 kg
Verification scale interval e : 5 g

Load	Indication I_1	Remove load ΔL	Add1/10d	Extra load $=1.4d$	Indication I_2	$I_2 - I_1$
(kg)	(kg)	(g)	(g)	(g)	(kg)	(kg)
0.1+0.005	0.105	2.5	0.5	7	0.110	0.005
15+0.005	15.005	2.5	0.5	7	15.010	0.005
30+0.005	30.010	3.0	0.5	7	30.015	0.005

Check if $I_2 - I_1 = d$ ☒ x

Passed

☐ Failed

Remarks



7 REPEATABILITY

Date: 11.11.2022

Maximum Capacity = 30 kg
Verification scale interval e = 5 g

load (weighing 1-10) 15 kg

$$E = I + 1/2 e - \Delta L - L$$

	Indication of load I (kg)	Add load ΔL (g)	E (g)
1	15.000	2.0	0.5
2	15.000	1.5	1.0
3	15.000	3.0	-0.5
4	15.000	3.0	-0.5
5	15.000	2.5	0.0
6	15.000	3.5	-1.0
7	15.000	1.5	1.0
8	15.000	2.0	0.5
9	15.000	2.5	0.0
10	15.000	2.5	0.0

$E_{\max} - E_{\min}$ (weighing 1-10) 2.0 g
mpe 7.5 g

☒ Passed ☐ Failed

Remarks

Load (weighing 11-20) 30 kg

	Indication of load I (kg)	Add load ΔL (g)	E (g)
11	30.005	4.5	3.0
12	30.005	4.5	3.0
13	30.005	4.0	3.5
14	30.005	3.0	4.5
15	30.005	3.5	4.0
16	30.005	4.0	3.5
17	30.005	4.5	3.0
18	30.005	4.5	3.0
19	30.005	4.0	3.5
20	30.005	3.5	4.0

$E_{\max} - E_{\min}$ (weighing 11-20) 1.5 g
mpe 7.5 g

12



12

8 TIME-DEPENDENCE

Date: 14.11.2022

8.1 Zero return

Maximum Capacity = 30 kg

Verification scale interval $e =$ 5 g

$$P = | + 1/2 e - \Delta L$$

Time of reading	Load L_n	Indication of zero I_n	Add load ΔL	P
	(kg)	(kg)	(g)	(kg)
	0.0	0.000	3.0	-0.00050
After loading for 0.5 h				
	0.0	0.000	2.0	0.00050

Change of zero indication

 $(\Delta P) =$ 0.0010 kgCheck if $(\Delta P) \leq 0.5 e$
☒ Passed
 ☐ Failed

Remarks



8 Creep

Date: 14.11.2022

8.2 Creep

Maximum Capacity = 30 kg

Verification scale interval $e = 5 \text{ g}$

$$P = I + 1/2 e - \Delta L$$

Time of reading	Load L (kg)	Indication I (kg)	Add load ΔL (g)	P (kg)	ΔP (kg)
0 min	30	30.005	4.5	30.0030	
5 min	30	30.005	4.5	30.0030	0.0000
15 min	30	30.005	4.0	30.0035	0.0005
30 min	30	30.005	4.0	30.0035	0.0005

(*)

1h					
2h					
3h					
4h					

ΔP = difference between P at the start (0 min) and P at a given time.

(*) If $(\Delta P) < 0.5 e$ during the first 30 min and if the variation of (dP) between 15 min and 30 min $< 0.2 e$, then the test is terminated. If not, the test shall continue for the next 3.5 hours. Check that during the total 4 hours: $(\Delta P) \leq mpe$

☒ Passed ☐ Failed

Remarks

(*)

[Handwritten signature]



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9 TILTING

Date: 15.11.2022

Maximum Capacity = 30 kg
Verification scale interval e: 5 g

- ☐ Instrument with leveling device and level indicator
☐ Instrument with automatic tilt sensor
☒ Instrument without level indicator or automatic tilt sensor
☐ Mobile instrument with automatic tilt sensor
☐ Mobile instrument with Cardanic suspension

Limiting value of tilting = 5%

Give (If appropriate on separate sheet)
A skect of the load receptor showing the location of the level indicator, if provided.

$E_v = I_v + 1/2 e - \Delta L_v - L$ ($V = 1,2,3,4,5$), I_v = Indication, ΔL_v = additional load

$E_{cv} = E_v - E_{vn}$ with E_{vn} = error calculated near to zero

LOAD L (kg)		Reference position	Tilted position with limited value of tilt					
Unloaded (*)								
0.05	I_v (kg)	0.050	0.050	0.050	0.050	0.050		
	ΔL_v (g)	2.5	2.5	1.5	2.0	3.0	$2e =$	10 g
	E_{vn} (g)	0.0	0.0	1.0	0.5	-0.5	$ E_n - E_{vn} \text{ max}$	1.00
								g
L = 15	I_v (kg)	15.000	15.000	15.000	15.000	15.000		
	ΔL_v (g)	3.0	2.0	1.5	3.5	2.0		
	E_v (g)	-0.5	0.5	1.0	-1.0	0.5	mpe =	7.5 g
	E_{cn} (g)	-0.5	0.5	0.0	-1.5	1.0	$ E_{cn} - E_{vn} \text{ max}$	1.5
								g
Max = 30	I_v (kg)	30.005	30.005	30.005	30.005	30.005		
	ΔL_v (g)	4.0	3.5	4.5	4.0	5.0		
	E_v (g)	3.5	4.0	3.0	3.5	2.5	mpe =	7.5 g
	E_{cn} (g)	3.5	4.0	2.0	3.0	3.0	$ E_{cn} - E_{vn} \text{ max}$	1.5

Check if the differences are a) $\leq 2 e$ for the unloaded instrument (not valid for class II instruments, if they are not used for direct sales to the public)
b) $\leq$ absolute value of mpe for the loaded instrument

☒ Passed

Failed

Remarks:



10 TARE (WEIGHING TEST)

Date: 16.11.2022

Maximum Capacity = 30 kg
Verification scale interval e: 5 g

$$E = l + 1/2 e - \Delta L - L$$

$$E_c = E - E_n \text{ with } E_o = \text{error calculated at or near zero (*)}$$

Tare weight = 5 kg					Tare Indication = -5.00 kg				
Load L (kg)	Indication (kg)		Add Load (g)		Error E (g)		Corrected error E _n (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.05	0.050	0.050	2.5	2.5	0.0	0.0	--	--	2.5
0.1	0.100	0.100	3.0	3.0	-0.5	-0.5	-0.5	-0.5	
1	1.000	1.000	3.0	2.5	-0.5	0.0	-0.5	0.0	
2.5	2.500	2.500	2.5	2.0	0.0	0.5	0.0	0.5	
5	5.000	5.000	1.5	2.5	1.0	0.0	1.0	0.0	5.0
8	8.000	8.000	3.0	3.0	-0.5	-0.5	-0.5	-0.5	
10	10.000	10.000	3.5	1.5	-1.0	1.0	-1.0	1.0	
15	15.000	15.000	2.0	1.5	0.5	1.0	0.5	1.0	7.5
20	20.000	20.000	2.5	2.0	0.0	0.5	0.0	0.5	
25	25.005		4.5		3.0		3.0		
Tare weight = 15 kg					Tare Indication = -15.00 kg				
0.05	0.050	0.050	2.0	2.0	0.5	0.5	--	--	2.5
0.1	0.100	0.100	1.5	2.5	1.0	0.0	0.5	-0.5	
1	1.000	1.000	1.5	3.0	1.0	-0.5	0.5	-1.0	
2.5	2.500	2.500	3.0	3.0	-0.5	-0.5	-1.0	-1.0	
5	5.000	5.000	2.5	1.5	0.0	1.0	-0.5	0.5	5.0
8	8.000	8.000	2.5	2.5	0.0	0.0	-0.5	-0.5	
10	10.000	10.000	3.0	2.5	-0.5	0.0	-1.0	-0.5	
12	12.000	12.000	1.5	3.0	1.0	-0.5	0.5	-1.0	7.5
14	14.000	14.000	2.0	1.5	0.5	1.0	0.0	0.5	
15	15.000		3.0		-0.5		-1.0		

☒ Passed ☐ Failed

Remarks:



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11 WARM - UP TIMES

Date: 17.11.2022

Maximum Capacity = 30 kg

Verification scale interval e: 5 g

$$E = I + 1/2 e - \Delta L - L$$

E_0 = error calculated at zero or near zero (unloaded)

E_L = error calculated at load (loaded)

	time (*)	Load (kg)	Indication (kg)	Add.load L (g)	Error (g)	EL - Eo (g)	mpe (±g)
Unloaded	0 min	0.05	0.050	2.0	0.5		
Loaded		30	30.005	3.5	4.0	3.5	7.5
Unloaded	5 min	0.05	0.050	2.5	0.0		
Loaded		30	30.005	4.0	3.5	3.5	7.5
Unloaded	15 min	0.05	0.050	2.5	0.0		
Loaded		30	30.005	4.5	3.0	3.0	7.5
Unloaded	30 min	0.05	0.050	2.0	0.5		
Loaded		30	30.005	4.0	3.5	3.0	7.5

(*) Counted from the moment an indication has first appeared. Check that [EL - Eo] < mpe

(*)

☒ Passed ☐ Failed

Remarks



12 VARIATIONS OF VOLTAGE

Date: 17.11.2022

Maximum Capacity = 30 kg
Verification scale interval e : 5 g

Marked nominal voltage or voltage range: 230 V

$$E = I + 1/2 e - \Delta L - L$$

$E_r = E - E_0$ with E_0 = error at zero or near zero (*)

Voltage	U (V)	Load L (kg)	Indication I (kg)	Add load ΔL (g)	Error E (g)	Corr.error E_0 (g)	mpe ($\pm g$)
Reference value (**)	230	0.05	0.050	2.0	0.5	-	
		30	30.005	4.5	3.0	2.5	7.5
" - 15%(**)	196	0.05	0.050	2.5	0.0	-	
		30	30.005	3.5	4.0	4.0	7.5
" + 10%(**)	253	0.05	0.050	2.0	0.5	-	
		30	30.005	4.0	3.5	3.0	7.5
Reference value(**)	230	0.05	0.050	2.5	0.0	-	
		30	30.005	4.0	3.5	3.5	7.5

☒ Passed ☐ Failed

Remarks
(*)



13 FREQUENCY VARIATION TEST

Date: 17.11.2022

Maximum Capacity = 30 kg

Verification scale interval $e = 5$ g

Marked nominal frequency: 50 Hz

$$E = I + 1/2 e - \Delta L - L$$

$E_c = E - E_n$ with E_n = error at zero or near zero (*)

Frequency Hz	Load L (kg)	Indication I (kg)	Add load ΔL (g)	Error E (g)	Corr.error E_c (g)	mpe ($\pm g$)
Reference value (50 Hz)	0.05	0.050	3.0	-0.5	0.0	2.5
	30	30.005	4.5	3.0	3.5	7.5
- 2 % (49 Hz)	0.05	0.050	2.0	0.5	1.0	2.5
	30	30.005	4.0	3.5	4.0	7.5
+ 2 % (51 Hz)	0.05	0.050	2.5	0.0	0.5	2.5
	30	30.005	4.0	3.5	4.0	7.5
Reference value (50 Hz)	0.05	0.050	2.0	0.5	1.0	2.5
	30	30.005	3.5	4.0	4.5	7.5

x Failed

Remarks
(*)



14 DRY HEAT CYCLE TEST

at 50 °C for 16 hours tested as per IS: 9000 (part 3/Sec 5) 1977.

Date: 18.11.2022

Maximum (Maximum Capacity = 30 kg
 Verification scale inter 5 g

$E = I + 1/2 e - \Delta L - L$
 $E_c = E - E_o$ with E_o = error calculated at or near zero(*)

a) Initial test (at reference temperature)

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.05	0.050	0.050	2.5	2.5	0.0	0.0	--	--	2.5
0.1	0.100	0.100	3.0	2.0	-0.5	0.5	-0.5	0.5	
1	1.000	1.000	2.0	1.5	0.5	1.0	0.5	1.0	
2.5	2.500	2.500	2.5	2.5	0.0	0.0	0.0	0.0	
5	5.000	5.000	1.5	3.0	1.0	-0.5	1.0	-0.5	5.0
8	8.000	8.000	2.0	3.0	0.5	-0.5	0.5	-0.5	
10	10.000	10.000	2.5	2.5	0.0	0.0	0.0	0.0	
15	15.000	15.000	3.0	2.0	-0.5	0.5	-0.5	0.5	7.5
20	20.000	20.000	2.5	1.5	0.0	1.0	0.0	1.0	
30	30.005		4.0		3.5		3.5		

b) Final test (after conditioning the instrument at 50 °C for 16 hours) :

Date: 21.11.2022

Load (L) (kg)	Indication (I) (kg)		Add. Load (ΔL) (g)		Error (E) (g)		Corrected error (Ec) (g)		mpe (±g)
	↓	↑	↓	↑	↓	↑	↓	↑	
0.05	0.050	0.050	2.0	2.5	0.5	0.0	--	--	2.5
0.1	0.100	0.100	2.5	2.5	0.0	0.0	-0.5	-0.5	
1	1.000	1.000	1.5	2.0	1.0	0.5	0.5	0.0	
2.5	2.500	2.500	3.0	3.5	-0.5	-1.0	-1.0	-1.5	
5	5.000	5.000	3.0	3.5	-0.5	-1.0	-1.0	-1.5	5.0
8	8.000	8.000	2.5	2.0	0.0	0.5	-0.5	0.0	
10	10.000	10.000	1.5	1.5	1.0	1.0	0.5	0.5	
15	15.000	15.000	3.0	1.5	-0.5	1.0	-1.0	0.5	7.5
20	20.000	20.000	2.0	2.0	0.5	0.5	0.0	0.0	
30	30.005		4.5		3.0		2.5		

☒ Passed ☐ Failed

Remarks:



15 **DRIFT TEST DUE TO TEMPERATURE.**

$$P = I + 1/2 e - \Delta L$$

Date: 22.11.2022

(a). LOW TEMPERATURE DRIFT:

Zero indication (kg)	Temp. °C	Additional Load applied (ΔL) (g)	P_1 (kg)	At rated load (kg)	Additional Load applied (ΔL) (g)	P_2 (kg)	$P_2 - P_1$ (kg)
0.050	24	2.5	0.0500	30.005	4.5	30.0030	29.9530
0.050	0	2.5	0.0500	30.005	4.0	30.0035	29.9535

Deviation at no load = $P_{\gamma_d} - P_{\gamma_0} = 0$ g

Deviation at rated load = $P_{\gamma_d} - P_{\gamma_0} = -0.5$ g

Date: 23.11.2022

(a). HIGH TEMPERATURE DRIFT:

Zero indication (kg)	Temp. °C	Additional Load applied (ΔL) (g)	P_1 (kg)	At rated load (kg)	Additional Load applied (ΔL) (g)	P_2 (kg)	$P_2 - P_1$ (kg)
0.050	24	2.5	0.0500	30.005	4.5	30.0030	29.9530
0.050	50	3.0	0.0495	30.005	4.0	30.0035	29.9540

Deviation at no load = $P_{\gamma_d} - P_{\gamma_0} = -0.5$ g

Deviation at rated load = $P_{\gamma_d} - P_{\gamma_0} = -1.0$ g

☒ Passed ☐ Failed

Remarks:

