

TEST REPORT

No. : SHIN2505001096CM01_EN

Date : 2025-06-05

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CUSTOMER NAME: TIANJIN HUILAI INTERNATIONAL TRADE CO., LTD.
ADDRESS: HENGTAI ROAD NO.14, DAQIUZHUANG TOWN, JINGHAI DISTRICT, TIANJIN, CHINA

Sample Name : RINGLOCK SCAFFOLD
Manufacturer : TIANJIN HUILAI INTERNATIONAL TRADE CO., LTD.

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

Date of Receipt : 2025-05-13
Testing Period : 2025-05-13 ~ 2025-05-30
Test result(s) : For further details, please refer to the following page(s)
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for
SGS-CSTC Standards Technical
Services (Shanghai) Co., Ltd..

Ziven Wang

Ziven Wang
Authorized signatory



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Summary of Results:

No.	Test Item	Test Method	Result	Conclusion
1	Steel tubes (circular)	EN 12810-1:2003 Clause 6.2.2	See Result	Pass
2	Further Requirements - General	EN 12810-1:2003 Clause 7.3.1 & EN 12811-1:2003 Clause 5	See Result	Pass
3	Side Protection	EN 12810-1:2003 Clause 7.3.2 & EN 12811-1:2003 Clause 5	See Result	Pass
4	Base Jacks	EN 12810-1:2003 Clause 7.3.3 & EN 12811-1:2003 Clause 5	See Result	Pass
5	Platform	EN 12810-1:2003 Clause 7.3.4 & EN 12811-1:2003 Clause 5	See Result	Pass
6	Uniformly Distributed Service Load	EN 12811-1:2003 Clause 6.2.2.2	See Result	Pass
7	Concentrated Load on Area 200mm × 200mm	EN 12811-1:2003 Clause 6.2.2.3	See Result	Pass
8	Concentrated Load on Area 500mm × 500mm	EN 12811-1:2003 Clause 6.2.2.3	See Result	Pass
9	Partial Area Load	EN 12811-1:2003 Clause 6.2.2.4	See Result	Pass
10	Dynamic Loading	EN 12811-1:2003 Clause 6.2.8 & EN 12810-1:2003 Clause 8.4 & EN 12810-2:2003 Annex B	See Result	Pass
11	Load Combinations	EN 12811-1:2003 Clause 6.2.9	See Result	Pass

Note: Pass : Meet the requirements;
Fail : Does not meet the requirements;
N/A : Not Apply to the judgment.



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Original Sample Photo:



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1. Test Item: Steel tubes (circular)

Test Method: EN 12810-1:2003 Clause 6.2.2

Test Condition:

Specimen: $\Phi 48.3\text{mm} \times 3.25\text{mm}$ (wall thickness), 1pc

Test Results:

Test Item	Test Result	Test Requirement	Conclusion
Steel tubes (circular)	$t=3.25\text{ mm}$ $R=544\text{N/mm}^2$ Tolerance of all thickness: 0.8%	For 2.0m standard ($\Phi 48.3\text{mm}$): t (wall thickness) $\approx 3.2\text{mm}$ (claimed by client). R (Yield strength) $\geq 235\text{N/mm}^2$ Tolerance of the wall thickness: $\pm 10\%$	Pass

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2. Test Item: Further Requirements - General

Test Method: EN 12810-1:2003 Clause 7.3.1 & EN 12811-1:2003 Clause 5

Test Condition:

Specimen: 2070mm×1090mm×6642mm (Length× Width× Height), 1pc

Test Result:

Test Item	Test Result	Requirement in EN 12810-1:2003 Clause 7.3.1 & EN 12811-1:2003 Clause 5	Conclusion
General – width category	It satisfies the requirement of a), b), c) and d)	a) Every area for access and working shall be so arranged as to provide a convenient working place; b) Attention shall be paid to ergonomic consideration; c) The area shall be fully decked and shall be provided with appropriate side protection; d) Connections between separate parts shall be effective and easy to monitor and easy to assemble and secure against accidental disconnection.	Pass
	w =1030mm; b=1040mm; c=1090mm; h ₃ =1940mm.	0.9m ≤ w (width of bay) ≤1.2m; b (free walking space) ≥500mm; c (clear distance between standards) ≥600mm; h ₃ (clear head height between working areas) ≥1900mm.	



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3. Test Item: Side Protection

Test Method: EN 12810-1:2003 Clause 7.3.2 & EN 12811-1:2003 Clause 5

Test Condition:

Specimen: 2070mm×1090mm×6642mm (Length× Width × Height), 1pcs

Test Result:

Test Item	Test Result	Requirement in EN 12810-1:2003 Clause 7.3.2 & EN 12811-1:2003 Clause 5	Conclusion
Side Protection	$d_1=990\text{mm}$	The principal guardrail shall be fixed so that its top surface is 1m or more above the adjacent level of the working area everywhere (absolute minimum height 950mm)	Pass
	$d_2=450\text{mm}$	The distance between the intermediate and adjacent principal $d_2 \leq 470\text{mm}$	



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4. Test Item: Base Jacks

Test Method: EN 12810-1:2003 Clause 7.3.3 & EN 12811-1:2003 Clause 5

Test Condition:

Specimen: $\Phi 38.25\text{mm} \times 600\text{mm}$ (Length), 1pcs

Test Result:

Test Item	Test Result	Requirement in EN 12810-1:2003 Clause 7.3.3 & EN 12811-1:2003 Clause 5	Conclusion
Base Jacks	The base jack can be adjusted at least 450mm	Base jacks shall have a minimum adjustment of 200mm	Pass
	The area of end plate is 217cm^2 . The width is 150mm	The area of the end plate shall be a minimum of 150 cm^2 . The minimum width shall be 120 mm	Pass
	The inclination of the axis of the shaft from the standard is 1.4%	The inclination of the axis of the shaft from the standard does not exceed 2.5%	Pass
	The minimum overlap length of adjustment is 150mm	The minimum overlap length at any position of adjustment shall be 25%(150mm) of the total length of the shaft, or 150mm which is greater	Pass
	The thickness of the endplate is 6 mm	The thickness of the endplate shall be at least 6 mm	Pass



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5. Test Item: Platform

Test Method: EN 12810-1:2003 Clause 7.3.4 & EN 12811-1:2003 Clause 5

Test Condition:

Specimen: 2070mm×1090mm×6642mm, 1pcs

Test Result:

Test Item	Test Result	Requirement in EN 12810-1:2003 Clause 7.3.4	Conclusion
Platform	The scaffold includes components to satisfy the requirement of a) and b).	For the versatility of platform height, the scaffold includes components to enable: a) The erection of adjacent pairs of standards on surfaces which differ in level by any amount up to 2.0m b) the erection of a single platform at any height between 2.0m and 24.0m	Pass
	It satisfies the requirement of a) and b).	a) Platform units should have a slip-resistant surface b) Working area shall be as level as possible.	
	c) N/A d) N/A	c) The decking components should close any gap between them wider than 25mm. d) Where a standard separates parts of a platform, the distance between these parts shall not be more than 80mm	



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6. Test Item: Uniformly Distributed Service Load

Test Method: EN 12811-1:2003 Clause 6.2.2.2

Test Condition:

Specimen: Platform unit, 2070mm×320mm (Length × Width), 1pc

Load class: Class 6

Test span: 2070mm

Test load: 6.0kN/m²

Test Result:

Test Item	Test Result	Requirement in EN 12811-1:2003 Clause 6.2.2.2	Conclusion
Uniformly Distributed Service Load	The working area could support the uniformly distributed load	The working area shall be capable of supporting the uniformly distributed load.	Pass

Test Photo(s):



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7. Test Item: Concentrated Load on Area 200mm × 200mm

Test Method: EN 12811-1:2003 Clause 6.2.2.3

Test Condition:

Specimen: Platform unit, 2070mm×320mm (Length × Width), 1pc

Load class: Class 6

Test span: 2070mm

Test load: 1.0kN

Loading area: 200mm×200mm

Test Result:

Test Item	Test Result	Requirement in EN 12811-1:2003 Clause 6.3.1	Conclusion
Concentrated Load on Area 200mm × 200mm	The platform unit could support the concentrated load on area 200mm × 200mm and the deflection at the center of span was 6.28mm.	The platform unit shall be capable of supporting the concentrated load on area 200mm × 200mm and the deflection at the center of span shall not exceed 20.70mm.	Pass

Note: When subjected to the concentrated loads specified in table 3, columns 3 and 4 the elastic deflection of any platform unit shall not exceed 1/100 of its span.



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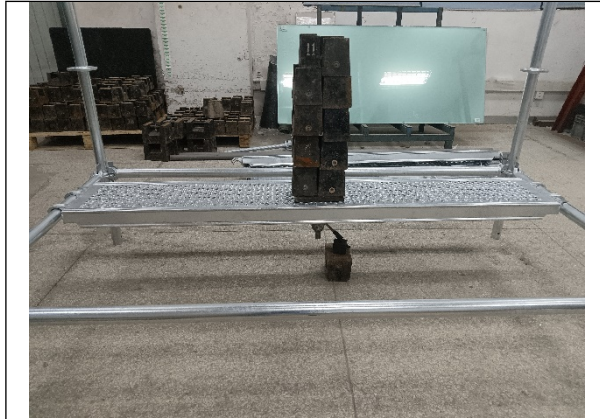
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8. Test Item: Concentrated Load on Area 500mm × 500mm

Test Method: EN 12811-1:2003 Clause 6.2.2.3

Test Condition:

Specimen: Platform unit, 2070mm×320mm (Length × Width), 1pc

Load class: Class 6

Test span: 2070mm

Test load: 1.92kN

Loading area: 500mm × 500mm

Test Result:

Test Item	Test Result	Requirement in EN 12811-1:2003 Clause 6.3.1	Conclusion
Concentrated Load on Area 500mm × 500mm	The platform unit could support the concentrated load on area 500mm × 500mm and the deflection at the center of span was 4.69mm.	The platform unit shall be capable of supporting the concentrated load on area 500mm × 500mm and the deflection at the center of span shall not exceed 20.70mm.	Pass

Note:

- 1) When subjected to the concentrated loads specified in table 3, columns 3 and 4 the elastic deflection of any platform unit shall not exceed 1/100 of its span.
- 2) When a platform unit is less than 500mm wide, the load, F_1 according to Table 3, may be reduced for this unit in proportion to its width, except that in no case shall the loading be reduced to less than 1.5kN.



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9. Test Item: Partial Area Load

Test Method: EN 12811-1:2003 Clause 6.2.2.4

Test Condition:

Platform unit: 2070mm×320mm (Length × Width), 1pc

Platform width w: 320m×3=960m

Load class: Class 6

Test span: 2070mm

Partial area load q_2 : 10kN/m²

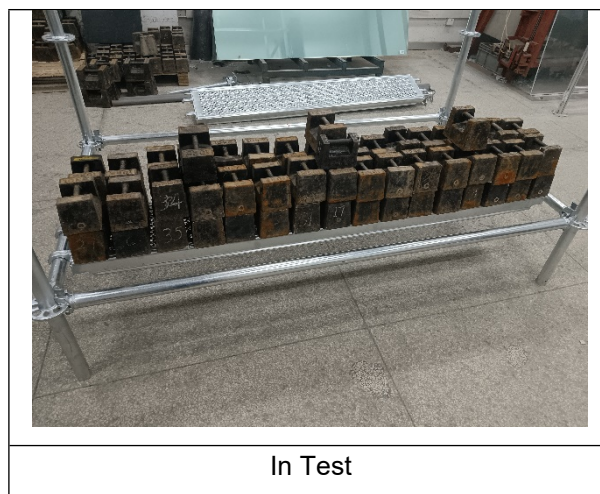
Partial area factor a_p : 0.5

Loading area: 2070mm×320mm

Test Result:

Test Item	Test Result	Requirement in EN 12811-1:2003 Clause 6.2.2.4	Conclusion
Partial Area Load	The working area could support the Partial Area Load	The working area shall be capable of supporting the Partial Area Load.	Pass

Test Photo(s):



10. Test Item: Dynamic Loading



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Test Method: EN 12811-1:2003 Clause 6.2.8 & EN 12810-1:2003 Clause 8.4 & EN 12810-2:2003 Annex B

Test Condition:

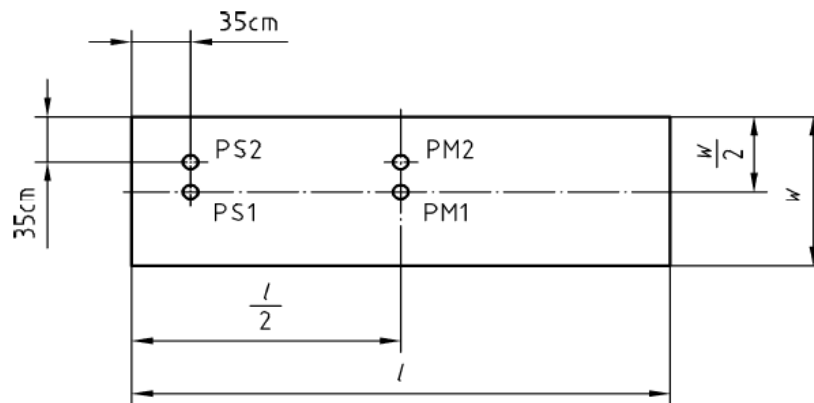
Platform unit: 2070mm×320mm×76mm (Length × Width × Thickness), 36pcs

Test frame: 2070mm×1090mm (Length × Width)

Drop height: 2.5m

Steel ball: Φ500mm, 100kg

Dimensions of damping pillow: 500mm×500mm×250mm (Length × Width × Thickness)



Impact point location

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Test Results:

Specimen No.	Test Location	Deflection After Test(mm)	Test Results	Requirement in EN 12811-1:2003 Clause 6.2.8 & EN 12810-1:2003 Clause 8.4 & EN 12810-2:2003 Annex B	Conclusion
1	PM1	82	The ball can be retained after test	For a successful test, the only requirement is that the tested assembly is still capable of carrying the static load of the steel ball. Permanent deformations or local damage are acceptable.	Pass
	PM2	33	The ball can be retained after test		Pass
	PS1	27	The ball can be retained after test		Pass
	PS2	19	The ball can be retained after test		Pass
2	PM1	95	The ball can be retained after test		Pass
	PM2	41	The ball can be retained after test		Pass
	PS1	24	The ball can be retained after test		Pass
	PS2	22	The ball can be retained after test		Pass
3	PM1	76	The ball can be retained after test		Pass
	PM2	35	The ball can be retained after test		Pass
	PS1	28	The ball can be retained after test		Pass
	PS2	17	The ball can be retained after test		Pass



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PS1-In Test



PS1-After Test



PS2-In Test



PS2-After Test

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11. Test Item: Load Combinations

Test Method: EN 12811-1:2003 Clause 6.2.9

Test Condition:

Specimen: 2070mm×1090mm×6642mm (Length × Width × Height), 1pc

1) Specimen Information

Table 1 The weight of designed bay, G_d ^{Note}

Scaffold components	Unit Mass (kg)	Number of components in design bay (24.642m design height)	The weight of design bay, G_d (kg)
Ringlock Base Collar	1.92	4	2616.54
Ringlock Standard 2.0m without spigot	9.73	4	
Ringlock Standard 2.0m with spigot	10.43	44	
Ringlock Ledger 1.09m	4.78	50	
Ringlock Ledger 2.07m	8.51	74	
Ringlock Diagonal Brace 1.09*2.0m	8.55	12	
Ringlock Diagonal Brace 2.07*2.0m	10.25	24	
Ringlock U Head Screw Jack	4.40	4	
Ringlock Base Jack	4.12	4	
Ringlock Steel Plank 2.07*0.320m	17.39	39	
Ringlock Steel Toeboard 1.09m	3.55	11	
Ringlock Steel Toeboard 2.07m	6.47	22	

Note: G_d =for one bay, the self weight of the assembled scaffold at its maximum design height, including all components, such as steel plank, scaffolding standard, base collar and so on.



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Table 2 The weight of test bay, G_t Note

Scaffold Components	Unit Mass (kg)	Number of Components in Test Bay (6.642m test height)	The Weight of Test Bay, G_t (kg)
Ringlock Base Collar	2.00	4	769.92
Ringlock Standard 2.0m without spigot	9.68	8	
Ringlock Standard 2.0m with spigot	10.38	4	
Ringlock Ledger 1.09m	4.70	20	
Ringlock Ledger 2.07m	8.13	20	
Ringlock Diagonal Brace 1.09*2.0m	8.28	6	
Ringlock Diagonal Brace 2.07*2.0m	9.76	6	
Ringlock U Head Screw Jack	4.75	4	
Ringlock Base Jack	4.07	4	
Ringlock Steel Plank 2.07*0.320m	17.27	12	
Ringlock Steel Toeboard 1.09m	2.92	4	
Ringlock Steel Toeboard 2.07m	5.28	4	

Note: G_t =for one bay, the weight of the assembled scaffold as erected to the height for the test, including all the components.

Table 3 Service Loads on Working Areas

EN 12811-1:2003 stipulates that the service uniformly distributed load applied to a working area for a load class 6 shall be 6.0kN/m².

Load Class on working area	Class 6
The number of working area in design bay	Two working areas
Uniformly distributed load q_1 kN/m ²	6.0



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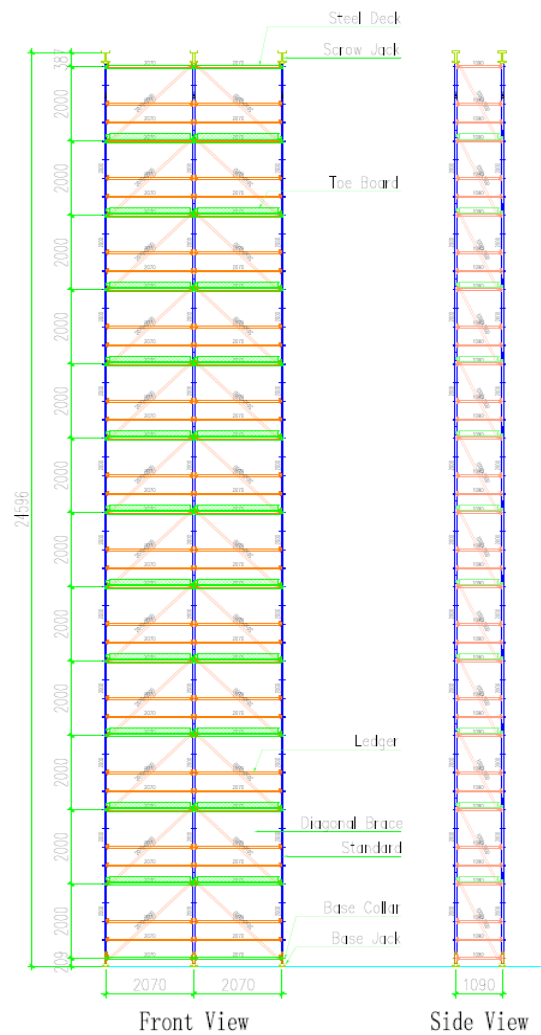
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2) Scaffold Configuration in Test:

The maximum design height of scaffold system was 24.642m according to client's instruction while the scaffold assembly installed in test was one bay wide (1090mm) and one bay long (2070mm), by three lifts high(6642mm), the height of each lift was 2000mm. The extension height of the adjustable leg was 450mm.



Scaffold configuration



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3) Load Calculation:

a) Self weight of the scaffold:

A vertical load was applied simulating the action of self weight of the scaffold assembly at the maximum design height in one bay on the standards. The load was distributed on the four standards through load beams.

$$F_v = G_d - G_t = 2617 - 770 = 1847 \text{ kgf},$$

b) Uniformly distributed service load appropriate to the class of the working scaffold specified in Table 3, column 2, acting on the working area of the most unfavourable decked level.

Specification of the steel plank: 2070mm (Length) × 1030mm (Width)

Number of steel plank in two working platforms: 6pcs

$$F_u = q_1 \times L \times W = 6.0 \times 2.07 \times 1.03 \times 2 \times 1000 / 9.8 = 2611 \text{ kgf}$$

c) 50% of the load specified in 2) shall be taken to act on the working area at the next level above or below if a working scaffold has more than one decked level.

$$F_{u50\%} = 2011 \times 50\% = 1306 \text{ kgf}$$

d) Horizontal working load specified in 6.2.3.

Horizontal working load:

$$F_{dh1} = F_u \times 2.5\% = 319.82 \text{ N};$$

$$F_{dh2} = 300 \text{ N};$$

$F_{dh} = 320 \text{ N}$ (For each bay considered the notional horizontal load shall be not less than 2.5% of the total of the uniformly distributed load, q_1 , specified in Table 3, on that bay, or 0.3kN, which is greater.)

$$F_{th} = H_d \times F_{dh} / H_t = 24.642 \times 320 / 6.642 = 1187 \text{ N} = 121 \text{ kgf}$$



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4) Test Procedure:

Apply the load combinations to the scaffold assembly, check the scaffold whether it be capable of resisting the worst combinations of loads to which it is likely to be subjected. The horizontal load shall be applied parallel and perpendicular to the bay separately.

5) Test Results:

a) Horizontal working load parallel to the bay

Test Item	Test Height	Value of Load		Test Result	Requirement in EN 12811-1:2003 Clause 6.2.9.1	Conclusion
Load Combinations (Service condition)	6.642m	Self-weight	1847kgf	The working scaffold structure shall be capable of resisting the worst combinations of loads to which it is likely to be subjected.	The working scaffold structure shall be capable of resisting the worst combinations of loads to which it is likely to be subjected.	Pass
		Uniformly distributed service load	2611kgf			
		50% of the uniformly distributed service load	1306kgf			
		Horizontal working load	121kgf			



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b) Horizontal working load perpendicular to the bay

Test Item	Test Height	Value of Load		Test Result	Requirement in EN 12811-1:2003 Clause 6.2.9.1	Conclusion
Load Combinations (Service condition)	6.642m	Self-weight	1847kgf	The working scaffold structure shall be capable of resisting the worst combinations of loads to which it is likely to be subjected.	The working scaffold structure shall be capable of resisting the worst combinations of loads to which it is likely to be subjected.	Pass
		Uniformly distributed service load	2611kgf			
		50% of the uniformly distributed service load	1306kgf			
		Horizontal working load	121kgf			



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Test Photo(s):

	
Horizontal Working Load Perpendicular to the Bay	Horizontal Working Load Parallel to the Bay

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Unless otherwise stated, this report provides a declaration of conformity according to whether the test results are within the specified limits or specifications without considering the measurement uncertainty.

*****End of report*****