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CNAS L11342



TEST REPORT

Determination of Impact Attenuation

According to EN 1177:2018+A1:2023 Standard – Test Method 1

SES Battle III

Hebei Enlio Sports Goods Co., LTD

LABORATORY TEST REPORT N°: LSA-R24578-A1

Report Date: 2024.09.25

Test Date: 2024.09.23



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Unless otherwise stated, this report's results refer only to the samples received and tested by the laboratory.

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1. CLIENT DETAILS

Company: Hebei Enlio Sports Goods Co., Ltd.

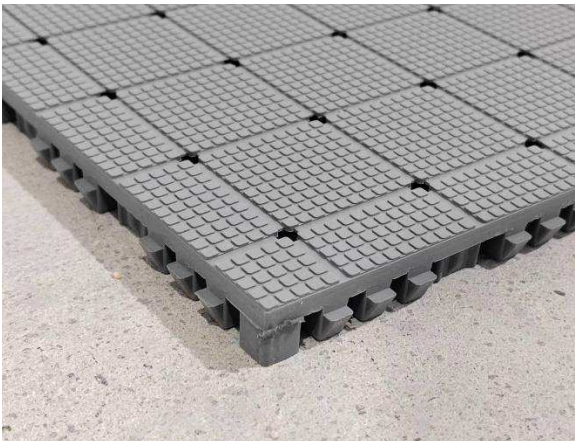
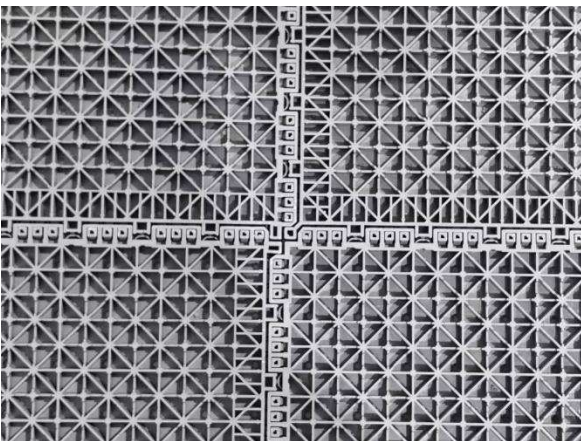
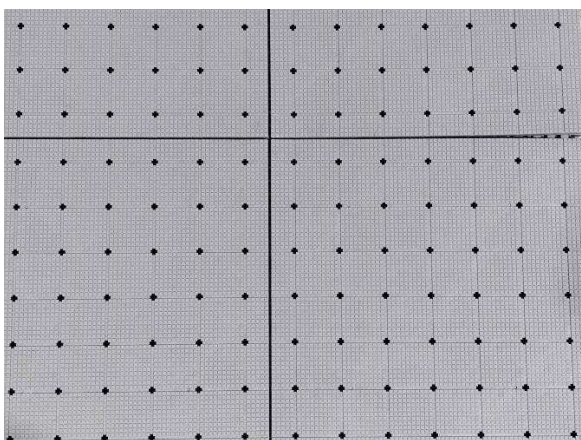
Address: Room 10-409, No.266 Tianshan St., Shijiazhuang, Hebei, China

Contact: 宜旭旭, Tel:+86 18832131031, Email: 773400416@qq.com

Date of order: 2024.09.20

Sample reception: 2024.09.20

2. PRODUCT INFORMATION



Product Name	SES Battle III *	Colour	Grey *
Manufacturer	Hebei Enlio Sports Goods Co., Ltd. *	Surface Type	Tiles, slabs or other prefabricated surfacing products
Thickness-Declaration	16mm *	Thickness-Measured	16mm

**The product declaration above was provided by Hebei Enlio Sports Goods Co., Ltd.*

3. TEST PROGRAM

The following tests have been carried out on the surface in accordance with the following standard/test methods:

- **Determination of Impact Attenuation..... EN 1177:2018 +A1:2023 Test Method 1**

The sample was laid on a concrete surface.

The tests were carried out at the client's factory and the tests conditions were:

- Temperature: 23°C ±2°C,
- Humidity: 50% ±5%.

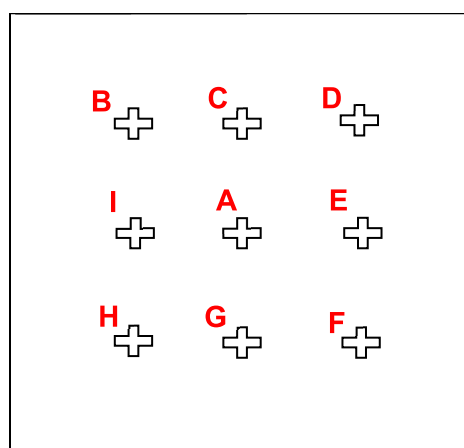
4. TEST RESULTS

4.1 Test description

The specimen to be tested is struck by an instrumented headform from different drop heights. The signal emitted by the accelerometer in the head form during each impact is processed to yield a severity from the measured impact energy, defined as head injury criterion (HIC) and to determine the peak acceleration (Gmax) experienced. The HIC of each impact is plotted and the critical fall height (CFH) is determined as the lowest drop height producing a HIC value of 1,000 or the lowest drop height producing a Gmax value of 200.

9 drop tests, each from 4 increasing drop heights are conducted and reported. Each drop test is done at a different position on the test specimen as required below:

- 1/ In the middle of the sample (A point)
- 2/ At 250mm on either side of the A point (E, I & C, G points)
- 3/ At 250mm on either side of the C point (B & D points)
- 4/ At 250mm on either side of the G point (H & F points)



A, ..., I impact points

4.2 Expression of the results

The critical fall height (CFH) of the tested sample is the lowest value from the 9 drop tests. This critical fall height (CFH) is expressed in meters, rounded to two decimals.

4.3 Test results

IMPACT POINT	Critical Fall Height for HIC 1,000 (m)	Critical Fall Height for Gmax 200 (m)	Critical Fall Height result (m)
A	0.65	0.56	0.56
B	0.67	0.60	
C	0.67	0.60	
D	0.67	0.59	
E	0.67	0.60	
F	0.90	0.88	
G	0.91	0.89	
H	0.92	0.89	
I	0.91	0.87	

Used equipment: LSA-150

Sensor / Equipment: HC24011

Details of each impact point is in annex.

5. CONCLUSION

According to the **EN 1177:2018 +A1:2023** standard (**method 1**), the Critical Fall Height (CFH) of the product “**SES Battle III**” is **0.56m**.

The results uncertainty is $\pm 5\%$.

REPORTED BY:



Niki Li
Laboratory Officer

APPROVED BY:



Olivier Ducrocq
Managing Director

ANNEX

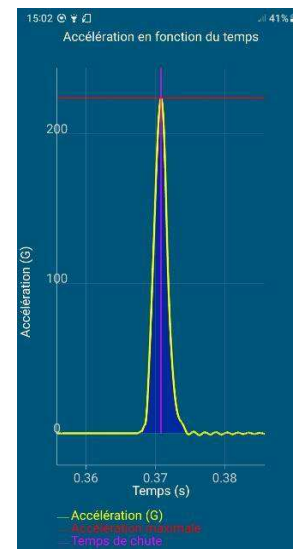
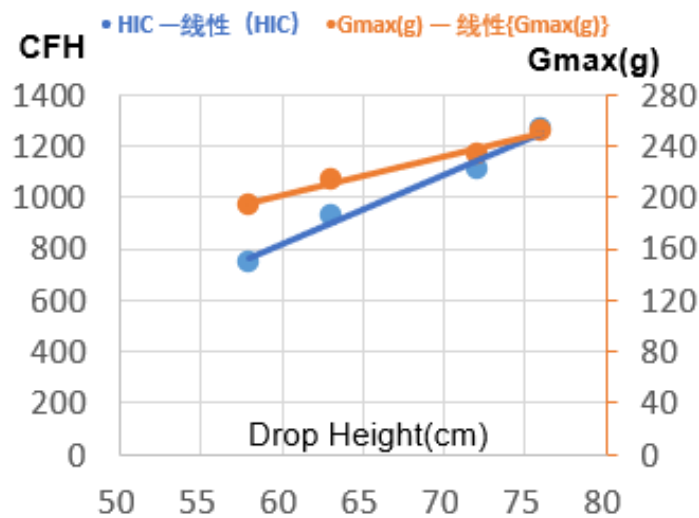
RESULTS POINT A

Drop	Time(ms)	H(cm)	HIC	Gmax(g)
1	3.43	52	708	189
2	3.29	63	946	224
3	3.16	72	1,128	242
4	3.07	75	1,243	254

Time checking: The impact time must be higher than 3ms **Compliant**

CFH for HIC 1,000 = 65.22cm
CFH for Gmax 200 = 55.60cm

Acceleration curve (g) / Time (ms) at the point A, Drop 2,
(HIC < 1,000, Gmax > 200g)

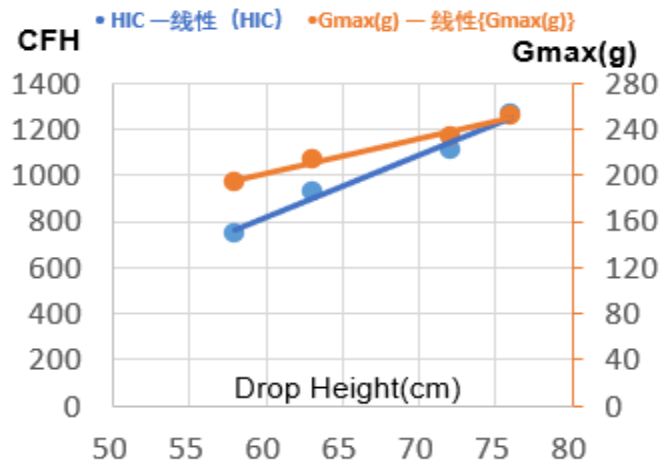


RESULTS POINT B

Drop	Time(ms)	H(cm)	HIC	Gmax(g)
1	3.24	58	745	193
2	3.17	63	924	214
3	3.13	72	1,105	233
4	3.09	76	1,264	251

Time checking: The impact time must be higher than 3ms **Compliant**

CFH for HIC 1,000 = 66.90cm
CFH for Gmax 200 = 59.83cm

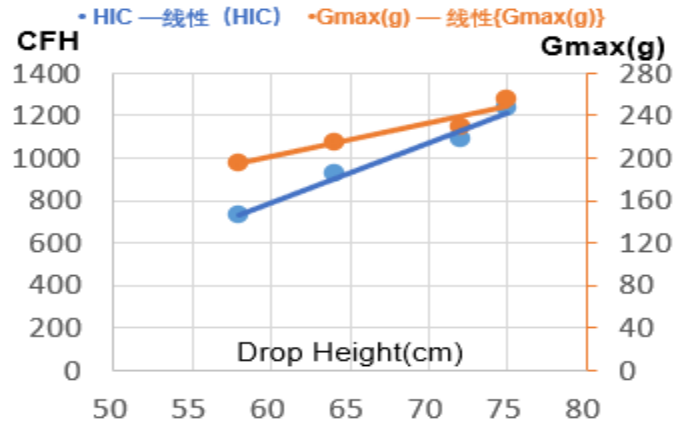


RESULTS POINT C

Drop	Time(ms)	H(cm)	HIC	Gmax(g)
1	3.31	58	728	195
2	3.24	64	924	215
3	3.18	72	1,087	230
4	3.09	75	1,236	256

Time checking: The impact time must be higher than 3ms **Compliant**

CFH for HIC 1,000 = 67.47cm
CFH for Gmax 200 = 60.30cm

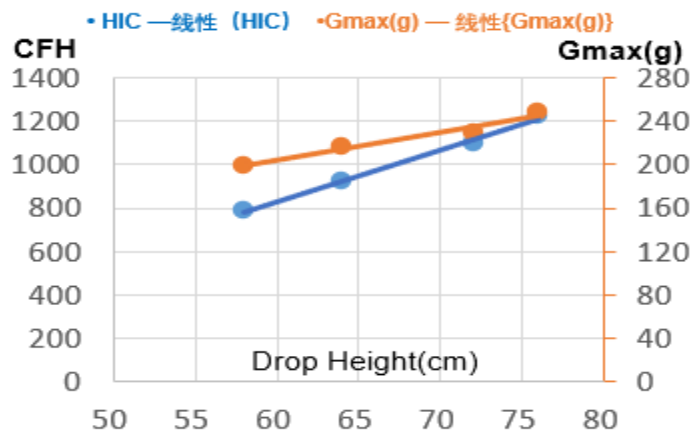


RESULTS POINT D

Drop	Time(ms)	H(cm)	HIC	Gmax(g)
1	3.19	58	785	199
2	3.17	64	920	216
3	3.13	72	1,089	219
4	3.07	76	1,226	249

Time checking: The impact time must be higher than 3ms **Compliant**

CFH for HIC 1,000 = 67.29cm
CFH for Gmax 200 = 58.79cm

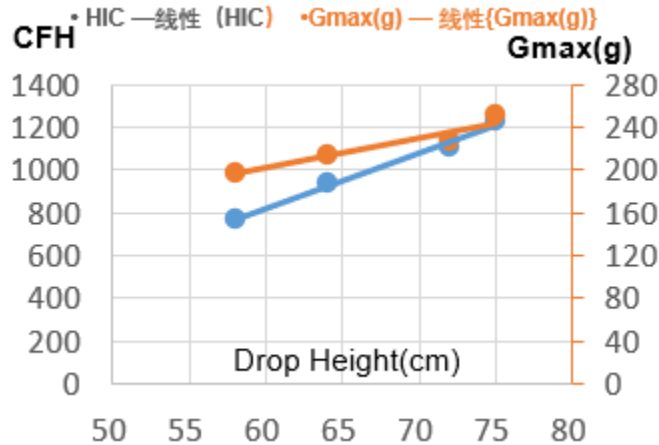


RESULTS POINT E

Drop	Time(ms)	H(cm)	HIC	Gmax(g)
1	3.27	58	764	197
2	3.19	64	935	214
3	3.14	72	1,104	226
4	3.06	75	1,231	251

Time checking: The impact time must be higher than 3ms **Compliant**

CFH for HIC 1,000 = 66.93cm
CFH for Gmax 200 = 60.12cm

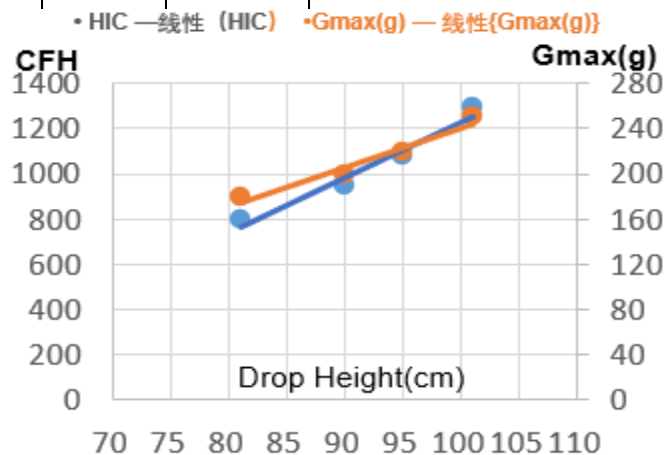


RESULTS POINT F

Drop	Time(ms)	H(cm)	HIC	Gmax(g)
1	3.45	81	794	180
2	3.27	90	947	199
3	3.13	95	1,080	219
4	3.11	101	1,294	251

Time checking: The impact time must be higher than 3ms **Compliant**

CFH for HIC 1,000 = 90.62cm
CFH for Gmax 200 = 88.42cm

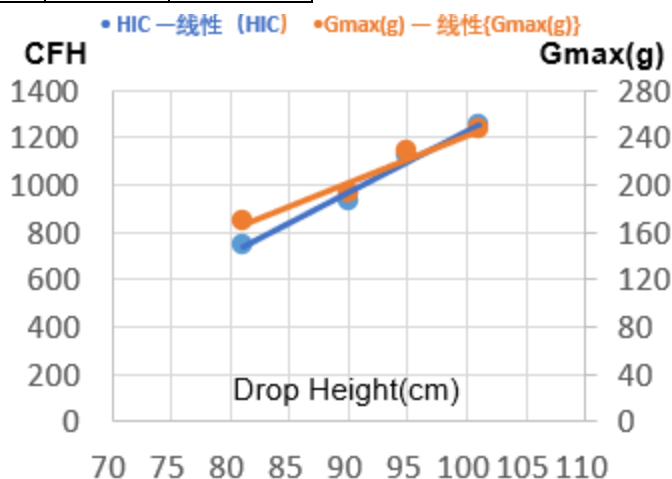


RESULTS POINT G

Drop	Time(ms)	H(cm)	HIC	Gmax(g)
1	3.48	81	748	170
2	3.37	90	931	193
3	3.21	95	1,127	228
4	3.16	101	1,255	247

Time checking: The impact time must be higher than 3ms **Compliant**

CFH for HIC 1,000 = 91.17cm
CFH for Gmax 200 = 89.47cm

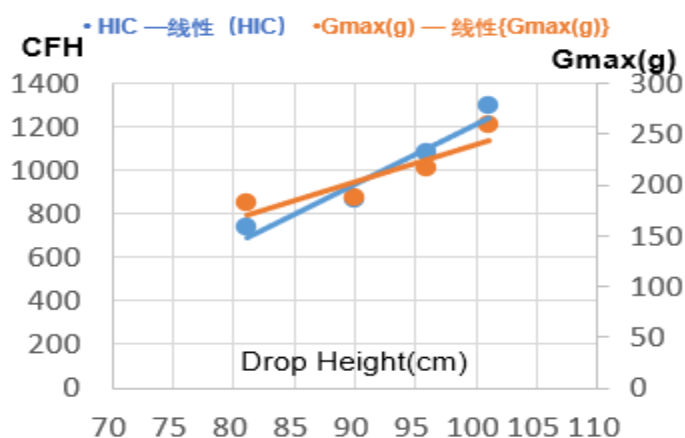


RESULTS POINT H

Drop	Time(ms)	H(cm)	HIC	Gmax(g)
1	3.45	81	742	182
2	3.32	90	864	188
3	3.17	96	1,078	216
4	3.12	101	1,296	259

Time checking: The impact time must be higher than 3ms **Compliant**

CFH for HIC 1,000 = 92.17cm
CFH for Gmax 200 = 89.52cm



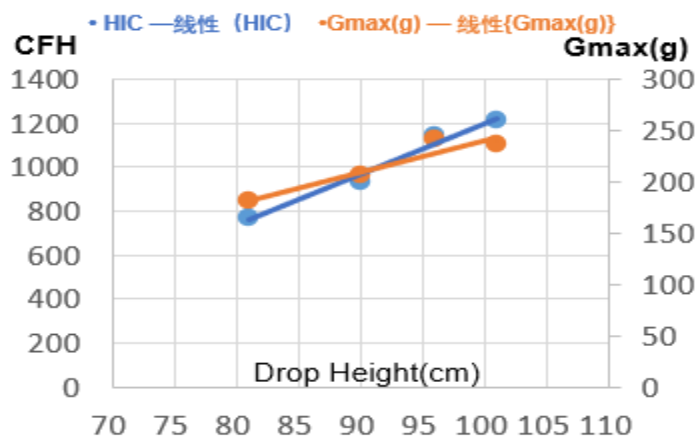
RESULTS POINT I

Drop	Time(ms)	H(cm)	HIC	Gmax(g)
1	3.46	81	773	181
2	3.27	90	933	206
3	3.13	96	1,140	241
4	3.14	101	1,209	236

Time checking: The impact time must be higher than 3ms **Compliant**

CFH for HIC 1,000 = 91.41cm

CFH for Gmax 200 = 87.34cm



~~~~~THE END~~~~~