

TSG INTERNATIONAL AG
 BUELACHSTRASSE 5,8057 ZUERICH SWITZERLAND

Sample Description : SENTINEL
 Item No. : 750860,750861
 Buyer : TSG INTERNATIONAL AG
 Manufacturer : NINGBO JARRET SPORTS GOODS CO.,LTD
 Supplier : NINGBO JARRET SPORTS GOODS CO.,LTD
 Country of Origin : CHINA
 Country of Destination : CHINA

As above test item and its relevant information regarding to the submission are provided and confirmed by the applicant. SGS is not liable to either the test item or its relevant information, in terms of the accuracy, suitability, reliability or/and integrity accordingly.

Size : 52cm-53CM, 54CM-55CM, 56CM-57CM, 58CM-59CM, 60CM-61CM, 62CM-63CM
 : 52cm-53CM: 41MM FOR 495 EN 960
 54CM-55CM: 41MM FOR 535 EN 960
 56CM-57CM: 38MM FOR 575 EN 960
 HPI (from basic plane) : 58CM-59CM: 43MM FOR 575 EN 960
 60CM-61CM: 43MM FOR 605 EN 960
 62CM-63CM: 52MM FOR 625 EN 960
 Sample Receiving Date : May 10, 2021
 Test Performing Date : May 10, 2021 to May 17, 2021
 Test Performed : BS EN 1078:2012+A1:2012
 Test Result(s) : For further details, please refer to the following page(s)

Signed for and on behalf of
 SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



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GZHL2105017392HM-01

Arthur Mak
 Authorized Signatory



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Test Conducted: Based on **BS EN 1078:2012+A1:2012**

Helmets for pedal cyclists and for users of skateboards and roller skates

Number of Tested Sample: 24 piece(s)

Test Results: Details shown as following table

| Clause | Test Method/Requirement | Result |
|--------|--|---------------------|
| 4.1 | <p>Materials</p> <p>For those parts of the helmet coming into contact with the skin, the material used should be known not to undergo appreciable alteration from contact with sweat or with substances likely to be found in toiletries. Materials shall not be used which are known to cause skin disorders.</p> | NT |
| 4.2 | <p>Construction</p> <p>The helmet normally consists of a means of absorbing impact energy and means of retaining the helmet on the head in an accident.</p> <p>The helmet should be durable and withstand handling. The helmet shall be so designed and shaped that parts of it (visor, rivets, ventilators, edges, fastening device and the like) are not likely to injure the user in normal use.</p> <p><i>NOTE: Helmets should:</i> <i>have low weight;</i> <i>be ventilating;</i> <i>be easy to put on and take off;</i> <i>be usable with spectacles;</i> <i>not significantly interfere with the ability of the user to hear traffic noise.</i></p> | Pass See annex 1 |
| 4.3 | <p>Field of vision</p> <p>When tested in accordance with 5.7 there shall be no occultation in the field of vision bounded by angles as follows (see Figure 1):</p> <ul style="list-style-type: none"> - horizontally: min. 105° from the longitudinal vertical median plane to the left and right hand sides; - upwards: min. 25° from the reference plane; - downwards: min. 45° from the basic plane. | Pass See annex 4 |
| 4.4 | <p>Shock absorbing capacity</p> <p>The helmet shall give protection to the forehead, rear, sides, temples and crown of the head.</p> <p>When tested in accordance with 5.3 and 5.4 the peak acceleration shall not, for each impact, exceed 250 g for the velocity of 5,42 +0.1,-0 m/s on the flat anvil, and 4,57+0.1,-0 m/s on the kerbstone anvil.</p> <p><i>NOTE: These are theoretically equivalent to 1 497 mm and 1 064 mm drop heights respectively.</i></p> | Pass See annex 2 |
| 4.5 | <p>Durability</p> <p>After being tested the helmet shall not exhibit damage that could cause significant injury to the wearer (sharp edges, points).</p> | Pass |
| 4.6 | <p>Retention system</p> | |



| Clause | Test Method/Requirement | Result |
|--------|---|---------------------|
| 4.6.1 | General Means shall be provided for retaining the helmet on the wearer's head. All parts of the retention system shall be securely attached to the helmet. | Pass |
| | Chin strap The chin strap shall not include a chin cup. Any chin strap shall be no less than 15 mm wide. Chin straps may be fitted with means of enhancing comfort for the wearer. | Pass |
| | Fastening device Any retention system shall be fitted with a device to adjust and maintain tension in the system. The device shall be capable of adjustment so that the buckle does not sit on the jaw bone. | Pass |
| | Color No part of the retention system shall be colored green. <i>NOTE: It is recommended that the opening mechanism be marked with red or orange color.</i> | Pass |
| 4.6.5 | Strength When tested in accordance with 5.5, the dynamic extension of the retention system shall not exceed 35 mm and the residual extension shall not exceed 25 mm. For this purpose, extension includes slippage of the fastening device. Damage to the retention system shall be accepted provided that the above requirements are met. <i>NOTE: In this test, slippage of the fastening device can be measured and recorded separately from other contributions to the extension but this is for information only and is not subject to a separate requirement.</i> | Pass See annex 3 |
| | Effectiveness When tested in accordance with 5.6 the helmet shall not come off the headform. | Pass |
| 4.6.7 | Ease of release Following the strength test in accordance with 5.5 and with the load still applied, it shall be possible to open the release system with one hand. | Pass |
| 5.2 | Inspection and determination of mass Inspect the helmet to ascertain whether it is suitable for its intended purpose and fulfils the general requirements in 4.2. Determine the mass of the helmets of the same size submitted for testing. Calculate and record the mean value in g rounded off to the nearest 10 g, stating the size of the helmet. | NT |
| | Marking Each helmet shall be marked in such a way that the following information is easily legible by the user and is likely to remain legible throughout the life of the helmet: | NT |
| 6 | a. the number of this European standard; | NT |
| | b. the name or trademark of the manufacturer; | NT |
| | c. the designation of the model; | NT |



| Clause | Test Method/Requirement | Result |
|--------|--|--------|
| | d. the designation, which shall be one or more of the following:-helmet for pedal cyclists, skateboarders or roller skaters; | NT |
| | e. the size or size range of the helmet, quoted as the circumference (in centimeters) of the head which the helmet is intended to fit; | NT |
| | f. the weight of the helmet (the average mass in g determined according to EN 1078,5.2); | NT |
| | g. year and quarter of manufacture; | NT |
| | h. a label carrying the instructions –“Warning! This helmet should not be used by children while climbing or doing other activities when there is a risk of strangulation/hanging if the child gets trapped with the helmet” | NT |
| | In addition, if the helmet has components made of material which are known to be adversely affected by contact with hydrocarbons, cleaning fluids, paints, transfers or other extraneous additions, the helmet shall carry an appropriate warning. | NT |
| | If there is a consumer sales packaging, the information specified in a), b), d), and h) shall also be given on that package. The text shall be of minimum font size 12. | NT |
| 7 | Information supplied by the manufacture | |
| | With every helmet clear information in the language of the country of sale shall be given as follows: | NT |
| | a. that the helmet can only protect if it fits well and that the buyer should try different sizes and choose the size which feels secure and comfortable on the head; | NT |
| | b. that the helmet should be adjusted to fit the user, e.g. the straps positioned so that they do not cover the ears, the buckle positioned away from the jawbone and the straps and buckle adjusted to be both comfortable and firm; | NT |
| | c. how the helmet should be positioned on the head to ensure the intended protection is provide (e.g. that it should be placed so as to protect the forehead and not be pushed too far over the back of the head); to protect the forehead and not be pushed too far over the back of the head); | NT |
| | d. that a helmet cannot always protect against injury; | NT |
| | e. that a helmet subjected to a severe impact should be discarded and destroyed; | NT |
| | f. a statement of the danger of modifying or removing any of the original component parts of the helmet other than as recommended by the manufacturer, and that helmets should not be adapted for the purpose of fitting accessories in a way not recommended by the manufacturer. | NT |

Remark:

1. NA = Not applicable.
2. NT = Not tested as per client's request.
3. This test report is to supersede No. GZHL2105017392HM test report which was issued on May 18, 2021. And the original test reports (paper and electronic) are invalid.



Model: 750860, 750861

Size: 52-53 cm

Test headform: 495 (EN 960:2006)

Annex-1: Mass

Mass of the samples:

| Sample No. | Mass (g) |
|------------|----------|
| 1 | 1143 |
| 2 | 1136 |
| 3 | 1142 |
| 4 | 1144 |
| Average | 1141.2 |

Annex-2: Impact energy attenuation test

Test Specification: BS EN 1078:2012+A1:2012-5.4

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Test Anvil | Test site | Velocity (m/s) | Peak'G | Result |
|------------|--|------------|-----------|----------------|--------|--------|
| 1 | High temperature No recondition (Clause 5.4.2.1) | Kerbstone | Front | 4.58 | 113.1 | Pass |
| | | Flat | Left | 5.44 | 194.3 | Pass |
| 2 | Low temperature No recondition (Clause 5.4.2.2) | Flat | Crown | 5.42 | 222.1 | Pass |
| | | Kerbstone | Left rear | 4.60 | 98.1 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | Kerbstone | Left | 4.59 | 183.9 | Pass |
| | | Flat | Rear | 5.42 | 162.4 | Pass |

Annex-3: Retention system strength

Test Specification: BS EN 1078:2012+A1:2012-5.5

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Dynamic extension (mm) | Residual extension (mm) | Result |
|------------|--|------------------------|-------------------------|--------|
| 2 | Low temperature No recondition (Clause 5.4.2.2) | 21.7 | 8.1 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | 20.0 | 8.5 | Pass |

Annex-4: Field of vision

Test Specification: BS EN 1078:2012+A1:2012-5.7

Horizontal: >105°

Upward: >25°

Downward: >45°



Model: 750860, 750861

Size: 54-55 cm

Test headform: 535 (EN 960:2006)

Annex-1: Mass

Mass of the samples:

| Sample No. | Mass (g) |
|------------|----------|
| 1 | 1149 |
| 2 | 1145 |
| 3 | 1144 |
| 4 | 1147 |
| Average | 1146.2 |

Annex-2: Impact energy attenuation test

Test Specification: BS EN 1078:2012+A1:2012-5.4

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Test Anvil | Test site | Velocity (m/s) | Peak'G | Result |
|------------|--|------------|-----------|----------------|--------|--------|
| 1 | High temperature No recondition (Clause 5.4.2.1) | Kerbstone | Front | 4.60 | 105.8 | Pass |
| | | Flat | Left | 5.43 | 153.9 | Pass |
| 2 | Low temperature No recondition (Clause 5.4.2.2) | Flat | Crown | 5.47 | 210.0 | Pass |
| | | Kerbstone | Left rear | 4.61 | 126.1 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | Kerbstone | Left | 4.61 | 157.4 | Pass |
| | | Flat | Rear | 5.46 | 155.9 | Pass |

Annex-3: Retention system strength

Test Specification: BS EN 1078:2012+A1:2012-5.5

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Dynamic extension (mm) | Residual extension (mm) | Result |
|------------|--|------------------------|-------------------------|--------|
| 2 | Low temperature No recondition (Clause 5.4.2.2) | 21.8 | 8.8 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | 19.3 | 6.7 | Pass |

Annex-4: Field of vision

Test Specification: BS EN 1078:2012+A1:2012-5.7

Horizontal: >105°

Upward: >25°

Downward: >45°



Model: 750860, 750861

Size: 56-57 cm

Test headform: 575 (EN 960:2006)

Annex-1: Mass

Mass of the samples:

| Sample No. | Mass (g) |
|------------|----------|
| 1 | 1153 |
| 2 | 1147 |
| 3 | 1152 |
| 4 | 1150 |
| Average | 1150.5 |

Annex-2: Impact energy attenuation test

Test Specification: BS EN 1078:2012+A1:2012-5.4

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Test Anvil | Test site | Velocity (m/s) | Peak'G | Result |
|------------|--|------------|-----------|----------------|--------|--------|
| 1 | High temperature No recondition (Clause 5.4.2.1) | Kerbstone | Front | 4.58 | 102.9 | Pass |
| | | Flat | Left | 5.44 | 136.9 | Pass |
| 2 | Low temperature No recondition (Clause 5.4.2.2) | Flat | Crown | 5.46 | 209.9 | Pass |
| | | Kerbstone | Left rear | 4.63 | 124.5 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | Kerbstone | Left | 4.61 | 126.6 | Pass |
| | | Flat | Rear | 5.46 | 138.1 | Pass |

Annex-3: Retention system strength

Test Specification: BS EN 1078:2012+A1:2012-5.5

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Dynamic extension (mm) | Residual extension (mm) | Result |
|------------|--|------------------------|-------------------------|--------|
| 2 | Low temperature No recondition (Clause 5.4.2.2) | 21.6 | 10.2 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | 19.7 | 6.7 | Pass |

Annex-4: Field of vision

Test Specification: BS EN 1078:2012+A1:2012-5.7

Horizontal: >105°

Upward: >25°

Downward: >45°



Model: 750860, 750861

Size: 58-59 cm

Test headform: 575 (EN 960:2006)

Annex-1: Mass

Mass of the samples:

| Sample No. | Mass (g) |
|------------|----------|
| 1 | 1272 |
| 2 | 1265 |
| 3 | 1266 |
| 4 | 1269 |
| Average | 1268 |

Annex-2: Impact energy attenuation test

Test Specification: BS EN 1078:2012+A1:2012-5.4

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Test Anvil | Test site | Velocity (m/s) | Peak'G | Result |
|------------|--|------------|-----------|----------------|--------|--------|
| 1 | High temperature No recondition (Clause 5.4.2.1) | Kerbstone | Front | 4.60 | 98.0 | Pass |
| | | Flat | Left | 5.50 | 160.7 | Pass |
| 2 | Low temperature No recondition (Clause 5.4.2.2) | Flat | Crown | 5.45 | 213.4 | Pass |
| | | Kerbstone | Left rear | 4.61 | 102.5 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | Kerbstone | Left | 4.59 | 111.2 | Pass |
| | | Flat | Rear | 5.43 | 139.2 | Pass |

Annex-3: Retention system strength

Test Specification: BS EN 1078:2012+A1:2012-5.5

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Dynamic extension (mm) | Residual extension (mm) | Result |
|------------|--|------------------------|-------------------------|--------|
| 2 | Low temperature No recondition (Clause 5.4.2.2) | 23.6 | 9.6 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | 21.6 | 9.4 | Pass |

Annex-4: Field of vision

Test Specification: BS EN 1078:2012+A1:2012-5.7

Horizontal: >105°

Upward: >25°

Downward: >45°



Model: 750860, 750861

Size: 60-61 cm

Test headform: 605 (EN 960:2006)

Annex-1: Mass

Mass of the samples:

| Sample No. | Mass (g) |
|------------|----------|
| 1 | 1259 |
| 2 | 1255 |
| 3 | 1260 |
| 4 | 1256 |
| Average | 1257.5 |

Annex-2: Impact energy attenuation test

Test Specification: BS EN 1078:2012+A1:2012-5.4

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Test Anvil | Test site | Velocity (m/s) | Peak'G | Result |
|------------|--|------------|-----------|----------------|--------|--------|
| 1 | High temperature No recondition (Clause 5.4.2.1) | Kerbstone | Front | 4.60 | 104.8 | Pass |
| | | Flat | Left | 5.42 | 150.0 | Pass |
| 2 | Low temperature No recondition (Clause 5.4.2.2) | Flat | Crown | 5.45 | 209.4 | Pass |
| | | Kerbstone | Left rear | 4.61 | 103.8 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | Kerbstone | Left | 4.61 | 113.4 | Pass |
| | | Flat | Rear | 5.45 | 133.3 | Pass |

Annex-3: Retention system strength

Test Specification: BS EN 1078:2012+A1:2012-5.5

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Dynamic extension (mm) | Residual extension (mm) | Result |
|------------|--|------------------------|-------------------------|--------|
| 2 | Low temperature No recondition (Clause 5.4.2.2) | 22.4 | 10.1 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | 23.7 | 10.8 | Pass |

Annex-4: Field of vision

Test Specification: BS EN 1078:2012+A1:2012-5.7

Horizontal: >105°

Upward: >25°

Downward: >45°



Model: 750860, 750861

Size: 62-63 cm

Test headform: 625 (EN 960:2006)

Annex-1: Mass

Mass of the samples:

| Sample No. | Mass (g) |
|------------|----------|
| 1 | 1232 |
| 2 | 1240 |
| 3 | 1242 |
| 4 | 1235 |
| Average | 1237.2 |

Annex-2: Impact energy attenuation test

Test Specification: BS EN 1078:2012+A1:2012-5.4

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Test Anvil | Test site | Velocity (m/s) | Peak'G | Result |
|------------|--|------------|-----------|----------------|--------|--------|
| 1 | High temperature No recondition (Clause 5.4.2.1) | Kerbstone | Front | 4.60 | 91.7 | Pass |
| | | Flat | Left | 5.46 | 134.1 | Pass |
| 2 | Low temperature No recondition (Clause 5.4.2.2) | Flat | Crown | 5.44 | 195.9 | Pass |
| | | Kerbstone | Left rear | 4.58 | 88.8 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | Kerbstone | Left | 4.60 | 94.1 | Pass |
| | | Flat | Rear | 5.47 | 117.2 | Pass |

Annex-3: Retention system strength

Test Specification: BS EN 1078:2012+A1:2012-5.5

Ambient temperature at time of test: 23.2°C

| Sample No. | Condition | Dynamic extension (mm) | Residual extension (mm) | Result |
|------------|--|------------------------|-------------------------|--------|
| 2 | Low temperature No recondition (Clause 5.4.2.2) | 20.5 | 9.0 | Pass |
| 3 | Artificial Ageing No recondition (Clause 5.4.2.3) | 21.6 | 7.9 | Pass |

Annex-4: Field of vision

Test Specification: BS EN 1078:2012+A1:2012-5.7

Horizontal: >105°

Upward: >25°

Downward: >45°




Sample Photo(s):

| | |
|-------------------|--|
| <p>Front view</p> |  |
| <p>Side view</p> |  |



| | |
|------------------|--|
| <p>Back view</p> |  |
| <p>Top view</p> |  |



| | |
|--|--|
| <p>Bottom view</p> |  |
| <p>Test line for (495) EN 960:2006 head form</p> |  |



Test line for (535)
EN 960:2006 head
form



Test line for (575)
EN 960:2006 head
form



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Test line for (625)
EN 960:2006 head
form



End of Report

