# ROMA CO., LTD (CONG TY TNHH LA MA)

207/3A PHUOC LOI, BEN LUC, LONG AN
VIET NAM

The following sample was submitted and identified on behalf of the client as below:

| | | |
|---|---|---|
| SGS Job No. | : | HLL12/1412 |
| Sample Description | : | BENCH / CHAIR / TABLE |
| Buyer | : | HPSCHOU |
| Supplier | : | NA |
| Country of Origin | : | Viet Nam |
| Country of Destination | : | EU |
| Sample Receiving Date | : | December 04, 2012 |
| Testing Period | : | December 04, 2012 – December 18, 2012 |
| Test Results | : | Please refer to next page(s). |

Signed for and on behalf of
**SGS Vietnam LTD**

Tran Thi Lien
Hardline and E&E Lab Manager

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**Test result**

**A - Sample description:** BENCH / CHAIR - 1

**Outdoor furniture – Seating and tables for camping, domestic and contract use – Part 2: Mechanical safety requirement and test methods for seating (EN 581-2:2009)**

| | | | |
|---|---|---|---|
| **Test level** | : | ☐ Camping ☒Domestic ☐ Contract | |
| **Number of test sample** | : | ____1_____Piece(s) | |
| **Type of seating** | : | ☐ Chair<br>☐ Stool<br>☒ Bench<br>☐ Swing<br>☐ Others | |
| **Number of seat(s)** | : | ☒ One seat<br>☐ Two seats | ☐ Three seats<br>☐ Four seats or more |
| **Overall Dimention** | : | Width__1200__mm x Depth_923_mm x Height _671_mm | |
| **Net Weight** | : | __38.50__kg | |
| **Seat Height (from font edge to ground, without load)** | : | __265__mm | |
| **Defects observed before testing** | : | None | |
| **General test condition** | : | ☒ The sample for test was stored in indoor ambient conditions for at least 24h immediately prior to testing.<br>☐ The sample for test was not stored in indoor ambient conditions for at least 24h immediately prior to testing. | |

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| Clause | Test Method / Requirement | Rating/Result |
|---|---|---|
| 6 Test methods and requirements | | |
| 6.2.1 General safety requirements | The general safety requirements specified in EN 581-1 shall be fulfilled. | Test results see Appendix 1 |
| 6.2.3 Mechanical safety requirements | The requirements are fulfilled during and after testing in accordance with Table 1 when:<br>a) there are no fractures of any joint, member or component;<br>b) there is no loosening of joints intended to be rigid;<br>c) the seating fulfils its function after removal of the test loads. | Test results see Appendix 2 |
| 6.2.2 Stability requirements | The stability requirements specified in EN 1022 shall be fulfilled. | Test results see Appendix 3 |
| 6.1 Testing, general | The tests shall be carried out in the order in which they are presented in Annex 2. | Test results see Appendix 2 |
| | The additional test method for **multi-position back rests** is specified in Annex A. | Test results see Appendix 2 or Appendix 4 |
| | Test methods and requirements for loungers are specified in Annex B. | Test results of Annex B see Appendix 4 |
| **7 Instruction for use** | | |
| 7.1 General | Instruction for use shall be provided in the language(s) of the country where the seating are sold. Instructions shall be headed "IMPORTANT, RETAIN FOR FUTURE REFERENCE: READ CAREFULLY" in letters no less than 5 mm high. These instructions shall include at least the following:<br>a) name and address of the producer (manufacturer or supplier);<br>b) information regarding maintenance;<br>c) conditions for use of the product (camping, domestic or contract). | Pass |

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**Appendix 1: Outdoor furniture - Seating and tables for camping, domestic and contract use -- Part 1. General safety requirements (EN 581-1:2006):**

| Clause | Test Method/Requirement | Rating/Result |
|---|---|---|
| 5 Safety requirements | | |
| 5.1 Edges and corners | For seating, the edges and corners of the seat, back rest and arm rests which are directly in contact with the user when sitting, lying or reclining shall be rounded or chamfered. | Pass |
| | For table tops the edges and corners which are directly in contact with the user shall be rounded or chamfered. | NA |
| | All other edges and corners of seating and tables, accessible during use shall be free from burrs or/and sharp edges. | Pass |
| 5.2 Tubular components, holes and gaps accessible during use | Tubular components, holes and gaps accessible during use shall be covered if a 7 mm or 12 mm *test probe* can be pushed into them in any direction with a maximum force of 30 N to a depth of more than 10mm and cannot be pulled out again in the reverse direction by a maximum force of 30 N. | Pass |
| | Bottom of tubular legs shall be capped or plugged. | NA |
| 5.3 Shear and squeeze points | | |
| 5.3.1 Shear and squeeze points when setting up and folding | Unless 5.3.2 or 5.3.3 are applicable, shear and squeeze points that are created only during setting up or folding are acceptable providing the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately on experiencing pain. | NA |
| | The edges of parts moving relative to each other and creating shear and squeeze points shall be as specified in 5.1. | NA |
| 5.3.2 Shear and squeeze points under the influence of powered mechanisms | There shall be no accessible shear and squeeze points created by parts of the furniture operated by powered mechanisms, e.g. mechanical springs, gas lifts. | NA |
| 5.3.3 Shear and squeeze points during use | There shall be no accessible shear and squeeze points created by loads applied during normal use.<br>For seating, the loads applied during normal use can be found in *ENV 581-2*, and for tables in *EN 581-3*. | NA |
| | Shear and squeeze points are not acceptable if a hazard is created by the weight of the user during normal movements and actions, e.g. attempting to move the seating by lifting the seat or by adjusting the backrest. | NA |

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**Appendix 2**

| CLAUSE | TEST METHOD / REQUIREMENT | RATING/RESULT |
|---|---|---|
| EN 1728:2000 6.2.1 Seat and Back Static Load | Apply the downward force of __**1600**__ N at the seat loading position. With the downward force maintained, apply the back force of _**410**_ N at back loading position. Remove the back load and then the seat load. Repeat above operation for10+1 cycles. Check the chair for any damage. | Pass |
| EN 1728:2000 6.3 Seat and Back Static Load Test for tilting chairs, reclining chairs and loungers | One of the following tests are required for seating with backs which can have an angle of inclination of 70°or less to the horizontal. | NA |
| EN 1728:2000 6.2.2 Seat front edge static load test | Repeat the seat static load procedure on a point, 80mm back from the front edge of the structure using the seat load only. Apply the load __**1300**__ N at the most adverse position on the seat centre-line or as near one side of the seat as possible, but not less than 80mm from that edge of the structure. Repeat above operation for10+1 cycles. Check the chair for any damage. | Pass |
| EN 1728:2000 6.7 Seat and Back Fatigue Test [a] | Apply the downward force of 1000N at the seat loading position. With the downward force maintained, apply the back force of 330N at back loading position. Remove the back load and then the seat load. Repeat above operation for 25000 cycles. Check the chair for any damage.<br>Note: Apply section 6.9 for chair with adjustable back angle, which can not be rised more than 70° to the horizontal. (if applicable). | Pass |
| EN 1728:2000 6.9 Seat and Back Fatigue Test for tilting chairs, reclining chairs and loungers | One of the following tests are required for seating with backs which can have an angle of inclination of 70°or less to the horizontal.<br>When the back has an upright position(i.e. angle of inclination Φ can be greater than 70°)half the number of combined seat and back fatigue test cycles shall be carried out in the most upright position. The remaining half of the fatigue cycles shall be applied using the appropriate test procedure (see 6.9.1 or 6.9.2)with the chair adjusted so that the angle of inclination Φ is as small as possible.<br>When the back has no upright position the full number of fatigue cycles shall be carried out as specified below in 6.9.1 or 6.9.2. | NA |
| Annex B.2.1.2 and EN 1728:2000 6.9.1 Fatigue test for tilting chairs and intermediate reclining chairs | All seating having a minimum back inclination Φ of 55° or more to the horizontal shall be additionally tested except that the chair be set so that the loads are applied when the value of Φ is minimum. The seat load shall be W•Sin•(Φmin) and the back force shall be[(Φmin/60°)-0.1666]W•Cos•(Φmin). Repeat the test for ____cycles. | NA |

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| CLAUSE | TEST METHOD / REQUIREMENT | RATING/RESULT |
|---|---|---|
| Annex B.2.1.2 and EN 1728:2000 6.9.2 Fatigue test for fully reclining chairs | All seating having a minimum back inclination of 55°or less to the horizontal shall be additionally tested, except that the seat load shall be 0.75W and the back load shall be 0.75W•Cos•Φmin.(where W=specified seat load).<br>Repeat the test for 12500cycles. | NA |
| Annex A Fatigue test on back rest mechanism | Apply a weight of 100 kg at the seat loading position. Then apply rearwards alternating forces of ____ N each perpendicularly to the back rest at the height of 400 mm for ____cycles. | NA |
| EN 1728:2000 6.6 Arm Downwards Static Load Test | Apply the vertical force of __NA__ N for 10 times at the points along one arm most likely to cause failure, but no less than 100mm from either end of the arm structure. If the chair overbalances, apply a load on the side of the seat opposite to the arm under test large enough to prevent the chair from overbalancing. Check the chair for any damage. | NA |
| EN 1728:2000 6.10 Arm fatigue test | With the apparatus set at the position 10 degree to the vertical, apply the force of 400 N on the arm rest(s) for __NA__ cycles. | NA |
| EN 1728:2000 6.12 Leg Forward Static Load Test | Prevent the chair form movement by stops against the front leg. Apply the seat load of 75kg at the seat loading position. Apply the horizontal force of __300__ N centrally at the rear of the seat in a forward direction. Repeat above operation for 10 times. Check the chair for any damage. | Pass |
| EN 1728:2000 6.13 Leg Sideways Static Load Test | Prevent the chair from movement by stops against one front and one rear legs. Apply the seat load 75kg at any position not more than 150mm from the unload edge of the seat. Apply the horizontal force of __300__ N centrally to the side towards the restrained leg. Repeat above operation for 10 times. Check the chair for any damage. | Pass |
| EN 1728:2000 6.15 Seat Impact Test c | Allow the seat impactor to fall freely from the height of __180__ mm onto the seat loading position. Repeat above operation for 10 times. Check the chair for any damage.<br>This application point shall be at least 100mm from the front edge. This test shall not be carried out on seating with a seat height > 600mm. | Pass |
| EN 1728:2000 6.4 Foot Rail Static Load Test | Apply the force of ___ N on the centre-line of a foot rail at any point likely to cause failure. Repeat above operation for 10 cycles. Check the chair for any damage. | NA |

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## Appendix 3. Domestic furniture – seating – determination of stability (EN 1022:2005)

| Clause | Test Method / Requirements | Rating /Result |
|---|---|---|
| 6 Test procedure and requirements, all seating: experimental method | | |
| Forwards Overbalancing, All Seating (Clause 6.2) | Apply a force of 600N vertically at a point 60mm in from the front edge of the seat. At each loaded position, apply a force of 20N for 5 s horizontally outwards along a horizontal line Extended forward from the point where the base of the loading pad meets the upper surface of seat. Record whether or not the seating overbalances. | Pass |
| Forwards Overbalancing, All Seating with Footrest (Clause 6.3) | For seating with footrest repeat the procedure in Clause 6.2 applying the vertical and horizontal forces to the footrest. | NA |
| Sideways Overbalancing, All Seating without Arms (Clause 6.4) | Apply a force of 600N vertically at a point 60mm in from the edge of the seat nearest the stopped feet. Apply a sideways force of 20N horizontally outwards for at least 5s. Record whether or not the seating overbalances. | Pass |
| Sideways Overbalancing, All Seating with Arms (Clause 6.5) | Apply a vertical force of 250N at a position 100mm to the side of the fore and after center line of the seat which is nearest the stopped feet and between 175mm and 250mm forward of the rear edge of the seat. Apply a vertical force of 350N at a position on the centerline of the arm. Apply a horizontal force f of 20N outwards, and perpendicular to the line joining the stopped feet for at least 5s. Record whether or not the seating overbalances. | NA |
| Rearwards Overbalancing, All Seating with Backs (Clause 6.6) | Apply a vertical force of 600N to the seat. Apply the horizontal force of __210_ N to the back of the chair for 5 s. Record whether or not the seating overbalances. | Pass |
| 7 Test procedures and requirements for seating with variable geometry: experimental method | | |
| Tilt Chairs (Clause 7.3) | Load the chair with 11 loading discs (10kg), so that the discs are firmly against the chair back. Record whether the chair overbalances. | NA |
| Rocking Chairs (Clause 7.4) | Load the chair with 8 loading discs (10 kg), so that the discs are firmly against the chair back. Rock the chair forwards as far as is practicable. Allow the chair to rock rearwards freely under gravity. Record whether the chair overbalances. | NA |
| Reclining Chair with Footrests (Clause 7.5) | Load the back of the chair with eight loading discs and place three loading discs onto the footrest at specified distance from the intersection of the seat and back. Record whether or not the chair overbalances. | NA |
| 7.7 Reclining chairs without footrest | Load the back of the chair with eight loading discs by means of the support device and place three loading discs onto the front of the seat of the chair at a distance X from the intersection of the seat and back.<br>The seating shall not overturn during the test. | NA |

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**B - Sample description:** BENCH / CHAIR - 2

**Outdoor furniture – Seating and tables for camping, domestic and contract use – Part 2: Mechanical safety requirement and test methods for seating (EN 581-2:2009)**

| | | | |
|---|---|---|---|
| **Test level** | : | ☐ Camping ☒Domestic ☐ Contract | |
| **Number of test sample** | : | ____1_____Piece(s) | |
| **Type of seating** | : | ☐ Chair<br>☐ Stool<br>☒ Bench<br>☐ Swing<br>☐ Others | |
| **Number of seat(s)** | : | ☒ One seat<br>☐ Two seats | ☐ Three seats<br>☐ Four seats or more |
| **Overall Dimention** | : | Width__1470__mm x Depth_920_mm x Height _671_mm | |
| **Net Weight** | : | __55.44__kg | |
| **Seat Height (from font edge to ground, without load)** | : | __265__mm | |
| **Defects observed before testing** | : | None | |
| **General test condition** | : | ☒ The sample for test was stored in indoor ambient conditions for at least 24h immediately prior to testing.<br>☐ The sample for test was not stored in indoor ambient conditions for at least 24h immediately prior to testing. | |

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| Clause | Test Method / Requirement | Rating/Result |
|---|---|---|
| 6 Test methods and requirements | | |
| 6.2.1 General safety requirements | The general safety requirements specified in EN 581-1 shall be fulfilled. | Test results see Appendix 1 |
| 6.2.3 Mechanical safety requirements | The requirements are fulfilled during and after testing in accordance with Table 1 when:<br>a) there are no fractures of any joint, member or component;<br>b) there is no loosening of joints intended to be rigid;<br>c) the seating fulfils its function after removal of the test loads. | Test results see Appendix 2 |
| 6.2.2 Stability requirements | The stability requirements specified in EN 1022 shall be fulfilled. | Test results see Appendix 3 |
| 6.1 Testing, general | The tests shall be carried out in the order in which they are presented in Annex 2. | Test results see Appendix 2 |
| | The additional test method for **multi-position back rests** is specified in Annex A. | Test results see Appendix 2 or Appendix 4 |
| | Test methods and requirements for loungers are specified in Annex B. | Test results of Annex B see Appendix 4 |
| **7 Instruction for use** | | |
| 7.1 General | Instruction for use shall be provided in the language(s) of the country where the seating are sold. Instructions shall be headed "IMPORTANT, RETAIN FOR FUTURE REFERENCE: READ CAREFULLY" in letters no less than 5 mm high. These instructions shall include at least the following:<br>a) name and address of the producer (manufacturer or supplier);<br>b) information regarding maintenance;<br>c) conditions for use of the product (camping, domestic or contract). | Pass |

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**Appendix 1: Outdoor furniture - Seating and tables for camping, domestic and contract use -- Part 1. General safety requirements (EN 581-1:2006):**

| Clause | Test Method/Requirement | Rating/Result |
|---|---|---|
| 5 Safety requirements | | |
| 5.1 Edges and corners | For seating, the edges and corners of the seat, back rest and arm rests which are directly in contact with the user when sitting, lying or reclining shall be rounded or chamfered. | Pass |
| | For table tops the edges and corners which are directly in contact with the user shall be rounded or chamfered. | NA |
| | All other edges and corners of seating and tables, accessible during use shall be free from burrs or/and sharp edges. | Pass |
| 5.2 Tubular components, holes and gaps accessible during use | Tubular components, holes and gaps accessible during use shall be covered if a 7 mm or 12 mm *test probe* can be pushed into them in any direction with a maximum force of 30 N to a depth of more than 10mm and cannot be pulled out again in the reverse direction by a maximum force of 30 N. | Pass |
| | Bottom of tubular legs shall be capped or plugged. | NA |
| 5.3 Shear and squeeze points | | |
| 5.3.1 Shear and squeeze points when setting up and folding | Unless 5.3.2 or 5.3.3 are applicable, shear and squeeze points that are created only during setting up or folding are acceptable providing the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately on experiencing pain. | NA |
| | The edges of parts moving relative to each other and creating shear and squeeze points shall be as specified in 5.1. | NA |
| 5.3.2 Shear and squeeze points under the influence of powered mechanisms | There shall be no accessible shear and squeeze points created by parts of the furniture operated by powered mechanisms, e.g. mechanical springs, gas lifts. | NA |
| 5.3.3 Shear and squeeze points during use | There shall be no accessible shear and squeeze points created by loads applied during normal use.<br>For seating, the loads applied during normal use can be found in *ENV 581-2*, and for tables in *EN 581-3*. | NA |
| | Shear and squeeze points are not acceptable if a hazard is created by the weight of the user during normal movements and actions, e.g. attempting to move the seating by lifting the seat or by adjusting the backrest. | NA |

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**Appendix 2**

| CLAUSE | TEST METHOD / REQUIREMENT | RATING/RESULT |
|---|---|---|
| EN 1728:2000 6.2.1 Seat and Back Static Load | Apply the downward force of __**1600**__ N at the seat loading position. With the downward force maintained, apply the back force of _**410**_ N at back loading position. Remove the back load and then the seat load. Repeat above operation for10+1 cycles. Check the chair for any damage. | Pass |
| EN 1728:2000 6.3 Seat and Back Static Load Test for tilting chairs, reclining chairs and loungers | One of the following tests are required for seating with backs which can have an angle of inclination of 70°or less to the horizontal. | NA |
| EN 1728:2000 6.2.2 Seat front edge static load test | Repeat the seat static load procedure on a point, 80mm back from the front edge of the structure using the seat load only. Apply the load __**1300**__ N at the most adverse position on the seat centre-line or as near one side of the seat as possible, but not less than 80mm from that edge of the structure. Repeat above operation for10+1 cycles. Check the chair for any damage. | Pass |
| EN 1728:2000 6.7 Seat and Back Fatigue Test [a] | Apply the downward force of 1000N at the seat loading position. With the downward force maintained, apply the back force of 330N at back loading position. Remove the back load and then the seat load. Repeat above operation for 25000 cycles. Check the chair for any damage.<br>Note: Apply section 6.9 for chair with adjustable back angle, which can not be rised more than 70° to the horizontal. (if applicable). | Pass |
| EN 1728:2000 6.9 Seat and Back Fatigue Test for tilting chairs, reclining chairs and loungers | One of the following tests are required for seating with backs which can have an angle of inclination of 70°or less to the horizontal.<br>When the back has an upright position(i.e. angle of inclination Φ can be greater than 70°)half the number of combined seat and back fatigue test cycles shall be carried out in the most upright position. The remaining half of the fatigue cycles shall be applied using the appropriate test procedure (see 6.9.1 or 6.9.2)with the chair adjusted so that the angle of inclination Φ is as small as possible.<br>When the back has no upright position the full number of fatigue cycles shall be carried out as specified below in 6.9.1 or 6.9.2. | NA |
| Annex B.2.1.2 and EN 1728:2000 6.9.1 Fatigue test for tilting chairs and intermediate reclining chairs | All seating having a minimum back inclination Φ of 55° or more to the horizontal shall be additionally tested except that the chair be set so that the loads are applied when the value of Φ is minimum. The seat load shall be W•Sin•(Φmin) and the back force shall be[(Φmin/60°)-0.1666]W•Cos•(Φmin). Repeat the test for ____cycles. | NA |

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| CLAUSE | TEST METHOD / REQUIREMENT | RATING/RESULT |
|---|---|---|
| Annex B.2.1.2 and EN 1728:2000 6.9.2 Fatigue test for fully reclining chairs | All seating having a minimum back inclination of 55°or less to the horizontal shall be additionally tested, except that the seat load shall be 0.75W and the back load shall be 0.75W•Cos•Φmin.(where W=specified seat load).<br>Repeat the test for 12500cycles. | NA |
| Annex A Fatigue test on back rest mechanism | Apply a weight of 100 kg at the seat loading position. Then apply rearwards alternating forces of ____ N each perpendicularly to the back rest at the height of 400 mm for ____cycles. | NA |
| EN 1728:2000 6.6 Arm Downwards Static Load Test | Apply the vertical force of __700__ N for 10 times at the points along one arm most likely to cause failure, but no less than 100mm from either end of the arm structure. If the chair overbalances, apply a load on the side of the seat opposite to the arm under test large enough to prevent the chair from overbalancing. Check the chair for any damage. | Pass |
| EN 1728:2000 6.10 Arm fatigue test | With the apparatus set at the position 10 degree to the vertical, apply the force of 400 N on the arm rest(s) for __10000__ cycles. | Pass |
| EN 1728:2000 6.12 Leg Forward Static Load Test | Prevent the chair form movement by stops against the front leg. Apply the seat load of 75kg at the seat loading position. Apply the horizontal force of __300__ N centrally at the rear of the seat in a forward direction. Repeat above operation for 10 times. Check the chair for any damage. | Pass |
| EN 1728:2000 6.13 Leg Sideways Static Load Test | Prevent the chair from movement by stops against one front and one rear legs. Apply the seat load 75kg at any position not more than 150mm from the unload edge of the seat. Apply the horizontal force of __300__ N centrally to the side towards the restrained leg. Repeat above operation for 10 times. Check the chair for any damage. | Pass |
| EN 1728:2000 6.15 Seat Impact Test c | Allow the seat impactor to fall freely from the height of __180__ mm onto the seat loading position. Repeat above operation for 10 times. Check the chair for any damage.<br>This application point shall be at least 100mm from the front edge. This test shall not be carried out on seating with a seat height > 600mm. | Pass |
| EN 1728:2000 6.4 Foot Rail Static Load Test | Apply the force of ___ N on the centre-line of a foot rail at any point likely to cause failure. Repeat above operation for 10 cycles. Check the chair for any damage. | NA |

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## Appendix 3. Domestic furniture – seating – determination of stability (EN 1022:2005)

| Clause | Test Method / Requirements | Rating /Result |
|---|---|---|
| 6 Test procedure and requirements, all seating: experimental method | | |
| Forwards Overbalancing, All Seating (Clause 6.2) | Apply a force of 600N vertically at a point 60mm in from the front edge of the seat. At each loaded position, apply a force of 20N for 5 s horizontally outwards along a horizontal line Extended forward from the point where the base of the loading pad meets the upper surface of seat. Record whether or not the seating overbalances. | Pass |
| Forwards Overbalancing, All Seating with Footrest (Clause 6.3) | For seating with footrest repeat the procedure in Clause 6.2 applying the vertical and horizontal forces to the footrest. | NA |
| Sideways Overbalancing, All Seating without Arms (Clause 6.4) | Apply a force of 600N vertically at a point 60mm in from the edge of the seat nearest the stopped feet. Apply a sideways force of 20N horizontally outwards for at least 5s. Record whether or not the seating overbalances. | NA |
| Sideways Overbalancing, All Seating with Arms (Clause 6.5) | Apply a vertical force of 250N at a position 100mm to the side of the fore and after center line of the seat which is nearest the stopped feet and between 175mm and 250mm forward of the rear edge of the seat. Apply a vertical force of 350N at a position on the centerline of the arm. Apply a horizontal force f of 20N outwards, and perpendicular to the line joining the stopped feet for at least 5s. Record whether or not the seating overbalances. | Pass |
| Rearwards Overbalancing, All Seating with Backs (Clause 6.6) | Apply a vertical force of 600N to the seat. Apply the horizontal force of __210_ N to the back of the chair for 5 s. Record whether or not the seating overbalances. | Pass |
| 7 Test procedures and requirements for seating with variable geometry: experimental method | | |
| Tilt Chairs (Clause 7.3) | Load the chair with 11 loading discs (10kg), so that the discs are firmly against the chair back. Record whether the chair overbalances. | NA |
| Rocking Chairs (Clause 7.4) | Load the chair with 8 loading discs (10 kg), so that the discs are firmly against the chair back. Rock the chair forwards as far as is practicable. Allow the chair to rock rearwards freely under gravity. Record whether the chair overbalances. | NA |
| Reclining Chair with Footrests (Clause 7.5) | Load the back of the chair with eight loading discs and place three loading discs onto the footrest at specified distance from the intersection of the seat and back. Record whether or not the chair overbalances. | NA |
| 7.7 Reclining chairs without footrest | Load the back of the chair with eight loading discs by means of the support device and place three loading discs onto the front of the seat of the chair at a distance X from the intersection of the seat and back.<br>The seating shall not overturn during the test. | NA |

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**C - Sample description:** BENCH / CHAIR - 3

**Outdoor furniture – Seating and tables for camping, domestic and contract use – Part 2: Mechanical safety requirement and test methods for seating (EN 581-2:2009)**

| | | | |
|---|---|---|---|
| **Test level** | : | ☐ Camping ☒Domestic ☐ Contract | |
| **Number of test sample** | : | ____1____Piece(s) | |
| **Type of seating** | : | ☐ Chair<br>☐ Stool<br>☒ Bench<br>☐ Swing<br>☐ Others | |
| **Number of seat(s)** | : | ☒ One seat<br>☐ Two seats | ☐ Three seats<br>☐ Four seats or more |
| **Overall Dimention** | : | Width__1470__mm x Depth_920_mm x Height _671_mm | |
| **Net Weight** | : | __54.66__kg | |
| **Seat Height (from font edge to ground, without load)** | : | __264__mm | |
| **Defects observed before testing** | : | None | |
| **General test condition** | : | ☒ The sample for test was stored in indoor ambient conditions for at least 24h immediately prior to testing.<br>☐ The sample for test was not stored in indoor ambient conditions for at least 24h immediately prior to testing. | |

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| Clause | Test Method / Requirement | Rating/Result |
|---|---|---|
| 6 Test methods and requirements | | |
| 6.2.1 General safety requirements | The general safety requirements specified in EN 581-1 shall be fulfilled. | Test results see Appendix 1 |
| 6.2.3 Mechanical safety requirements | The requirements are fulfilled during and after testing in accordance with Table 1 when:<br>a) there are no fractures of any joint, member or component;<br>b) there is no loosening of joints intended to be rigid;<br>c) the seating fulfils its function after removal of the test loads. | Test results see Appendix 2 |
| 6.2.2 Stability requirements | The stability requirements specified in EN 1022 shall be fulfilled. | Test results see Appendix 3 |
| 6.1 Testing, general | The tests shall be carried out in the order in which they are presented in Annex 2. | Test results see Appendix 2 |
| | The additional test method for **multi-position back rests** is specified in Annex A. | Test results see Appendix 2 or Appendix 4 |
| | Test methods and requirements for loungers are specified in Annex B. | Test results of Annex B see Appendix 4 |
| **7 Instruction for use** | | |
| 7.1 General | Instruction for use shall be provided in the language(s) of the country where the seating are sold. Instructions shall be headed "IMPORTANT, RETAIN FOR FUTURE REFERENCE: READ CAREFULLY" in letters no less than 5 mm high. These instructions shall include at least the following:<br>a) name and address of the producer (manufacturer or supplier);<br>b) information regarding maintenance;<br>c) conditions for use of the product (camping, domestic or contract). | Pass |

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**Appendix 1: Outdoor furniture - Seating and tables for camping, domestic and contract use -- Part 1. General safety requirements (EN 581-1:2006):**

| Clause | Test Method/Requirement | Rating/Result |
|---|---|---|
| 5 Safety requirements | | |
| 5.1 Edges and corners | For seating, the edges and corners of the seat, back rest and arm rests which are directly in contact with the user when sitting, lying or reclining shall be rounded or chamfered. | Pass |
| | For table tops the edges and corners which are directly in contact with the user shall be rounded or chamfered. | NA |
| | All other edges and corners of seating and tables, accessible during use shall be free from burrs or/and sharp edges. | Pass |
| 5.2 Tubular components, holes and gaps accessible during use | Tubular components, holes and gaps accessible during use shall be covered if a 7 mm or 12 mm *test probe* can be pushed into them in any direction with a maximum force of 30 N to a depth of more than 10mm and cannot be pulled out again in the reverse direction by a maximum force of 30 N. | Pass |
| | Bottom of tubular legs shall be capped or plugged. | NA |
| 5.3 Shear and squeeze points | | |
| 5.3.1 Shear and squeeze points when setting up and folding | Unless 5.3.2 or 5.3.3 are applicable, shear and squeeze points that are created only during setting up or folding are acceptable providing the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately on experiencing pain. | NA |
| | The edges of parts moving relative to each other and creating shear and squeeze points shall be as specified in 5.1. | NA |
| 5.3.2 Shear and squeeze points under the influence of powered mechanisms | There shall be no accessible shear and squeeze points created by parts of the furniture operated by powered mechanisms, e.g. mechanical springs, gas lifts. | NA |
| 5.3.3 Shear and squeeze points during use | There shall be no accessible shear and squeeze points created by loads applied during normal use.<br>For seating, the loads applied during normal use can be found in *ENV 581-2*, and for tables in *EN 581-3*. | NA |
| | Shear and squeeze points are not acceptable if a hazard is created by the weight of the user during normal movements and actions, e.g. attempting to move the seating by lifting the seat or by adjusting the backrest. | NA |

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**Appendix 2**

| CLAUSE | TEST METHOD / REQUIREMENT | RATING/RESULT |
|---|---|---|
| EN 1728:2000 6.2.1 Seat and Back Static Load | Apply the downward force of __**1600**__ N at the seat loading position. With the downward force maintained, apply the back force of _**410**_ N at back loading position. Remove the back load and then the seat load. Repeat above operation for10+1 cycles. Check the chair for any damage. | Pass |
| EN 1728:2000 6.3 Seat and Back Static Load Test for tilting chairs, reclining chairs and loungers | One of the following tests are required for seating with backs which can have an angle of inclination of 70°or less to the horizontal. | NA |
| EN 1728:2000 6.2.2 Seat front edge static load test | Repeat the seat static load procedure on a point, 80mm back from the front edge of the structure using the seat load only. Apply the load __**1300**__ N at the most adverse position on the seat centre-line or as near one side of the seat as possible, but not less than 80mm from that edge of the structure. Repeat above operation for10+1 cycles. Check the chair for any damage. | Pass |
| EN 1728:2000 6.7 Seat and Back Fatigue Test [a] | Apply the downward force of 1000N at the seat loading position. With the downward force maintained, apply the back force of 330N at back loading position. Remove the back load and then the seat load. Repeat above operation for 25000 cycles. Check the chair for any damage.<br>Note: Apply section 6.9 for chair with adjustable back angle, which can not be rised more than 70° to the horizontal. (if applicable). | Pass |
| EN 1728:2000 6.9 Seat and Back Fatigue Test for tilting chairs, reclining chairs and loungers | One of the following tests are required for seating with backs which can have an angle of inclination of 70°or less to the horizontal.<br>When the back has an upright position(i.e. angle of inclination Φ can be greater than 70°)half the number of combined seat and back fatigue test cycles shall be carried out in the most upright position. The remaining half of the fatigue cycles shall be applied using the appropriate test procedure (see 6.9.1 or 6.9.2)with the chair adjusted so that the angle of inclination Φ is as small as possible.<br>When the back has no upright position the full number of fatigue cycles shall be carried out as specified below in 6.9.1 or 6.9.2. | NA |
| Annex B.2.1.2 and EN 1728:2000 6.9.1 Fatigue test for tilting chairs and intermediate reclining chairs | All seating having a minimum back inclination Φ of 55° or more to the horizontal shall be additionally tested except that the chair be set so that the loads are applied when the value of Φ is minimum. The seat load shall be W•Sin•(Φmin) and the back force shall be[(Φmin/60°)-0.1666]W•Cos•(Φmin). Repeat the test for ____cycles. | NA |

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| CLAUSE | TEST METHOD / REQUIREMENT | RATING/RESULT |
|---|---|---|
| Annex B.2.1.2 and EN 1728:2000 6.9.2 Fatigue test for fully reclining chairs | All seating having a minimum back inclination of 55°or less to the horizontal shall be additionally tested, except that the seat load shall be 0.75W and the back load shall be 0.75W•Cos•Φmin.(where W=specified seat load).<br>Repeat the test for 12500cycles. | NA |
| Annex A Fatigue test on back rest mechanism | Apply a weight of 100 kg at the seat loading position. Then apply rearwards alternating forces of ____ N each perpendicularly to the back rest at the height of 400 mm for ____cycles. | NA |
| EN 1728:2000 6.6 Arm Downwards Static Load Test | Apply the vertical force of __700__ N for 10 times at the points along one arm most likely to cause failure, but no less than 100mm from either end of the arm structure. If the chair overbalances, apply a load on the side of the seat opposite to the arm under test large enough to prevent the chair from overbalancing. Check the chair for any damage. | Pass |
| EN 1728:2000 6.10 Arm fatigue test | With the apparatus set at the position 10 degree to the vertical, apply the force of 400 N on the arm rest(s) for __10000__ cycles. | Pass |
| EN 1728:2000 6.12 Leg Forward Static Load Test | Prevent the chair form movement by stops against the front leg. Apply the seat load of 75kg at the seat loading position. Apply the horizontal force of __300__ N centrally at the rear of the seat in a forward direction. Repeat above operation for 10 times. Check the chair for any damage. | Pass |
| EN 1728:2000 6.13 Leg Sideways Static Load Test | Prevent the chair from movement by stops against one front and one rear legs. Apply the seat load 75kg at any position not more than 150mm from the unload edge of the seat. Apply the horizontal force of __300__ N centrally to the side towards the restrained leg. Repeat above operation for 10 times. Check the chair for any damage. | Pass |
| EN 1728:2000 6.15 Seat Impact Test c | Allow the seat impactor to fall freely from the height of __180__ mm onto the seat loading position. Repeat above operation for 10 times. Check the chair for any damage.<br>This application point shall be at least 100mm from the front edge. This test shall not be carried out on seating with a seat height > 600mm. | Pass |
| EN 1728:2000 6.4 Foot Rail Static Load Test | Apply the force of ___ N on the centre-line of a foot rail at any point likely to cause failure. Repeat above operation for 10 cycles. Check the chair for any damage. | NA |

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## Appendix 3. Domestic furniture – seating – determination of stability (EN 1022:2005)

| Clause | Test Method / Requirements | Rating /Result |
|---|---|---|
| 6 Test procedure and requirements, all seating: experimental method | | |
| Forwards Overbalancing, All Seating (Clause 6.2) | Apply a force of 600N vertically at a point 60mm in from the front edge of the seat. At each loaded position, apply a force of 20N for 5 s horizontally outwards along a horizontal line Extended forward from the point where the base of the loading pad meets the upper surface of seat. Record whether or not the seating overbalances. | Pass |
| Forwards Overbalancing, All Seating with Footrest (Clause 6.3) | For seating with footrest repeat the procedure in Clause 6.2 applying the vertical and horizontal forces to the footrest. | NA |
| Sideways Overbalancing, All Seating without Arms (Clause 6.4) | Apply a force of 600N vertically at a point 60mm in from the edge of the seat nearest the stopped feet. Apply a sideways force of 20N horizontally outwards for at least 5s. Record whether or not the seating overbalances. | NA |
| Sideways Overbalancing, All Seating with Arms (Clause 6.5) | Apply a vertical force of 250N at a position 100mm to the side of the fore and after center line of the seat which is nearest the stopped feet and between 175mm and 250mm forward of the rear edge of the seat. Apply a vertical force of 350N at a position on the centerline of the arm. Apply a horizontal force f of 20N outwards, and perpendicular to the line joining the stopped feet for at least 5s. Record whether or not the seating overbalances. | Pass |
| Rearwards Overbalancing, All Seating with Backs (Clause 6.6) | Apply a vertical force of 600N to the seat. Apply the horizontal force of __211_ N to the back of the chair for 5 s. Record whether or not the seating overbalances. | Pass |
| 7 Test procedures and requirements for seating with variable geometry: experimental method | | |
| Tilt Chairs (Clause 7.3) | Load the chair with 11 loading discs (10kg), so that the discs are firmly against the chair back. Record whether the chair overbalances. | NA |
| Rocking Chairs (Clause 7.4) | Load the chair with 8 loading discs (10 kg), so that the discs are firmly against the chair back. Rock the chair forwards as far as is practicable. Allow the chair to rock rearwards freely under gravity. Record whether the chair overbalances. | NA |
| Reclining Chair with Footrests (Clause 7.5) | Load the back of the chair with eight loading discs and place three loading discs onto the footrest at specified distance from the intersection of the seat and back. Record whether or not the chair overbalances. | NA |
| 7.7 Reclining chairs without footrest | Load the back of the chair with eight loading discs by means of the support device and place three loading discs onto the front of the seat of the chair at a distance X from the intersection of the seat and back.<br>The seating shall not overturn during the test. | NA |

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**D - Sample description:** TABLE

**Overall dimension** : Diameter 902 mmL x 800 mmW x Height 267 mm

**I. Based on BS EN 581-1:2006**

| TEST ITEM | TEST METHOD | TEST REQUIREMENT | RESULT |
|---|---|---|---|
| Edges and Corners | EN 581-1:2006 Clause 5.1 | For seating and table, the edges and corners which are directly in contact with the user shall be rounded or chamfered. | Pass |
| Tubular Components, Holes and Gaps Accessible during Use | EN 581-1:2006 Clause 5.2 | Tubular components, holes and gaps accessible during use shall covered if a 7 mm or 12 mm test probe can be pushed into them in any direction with a maximum force of 30 N to a depth of more than 10 mm and can not be pulled out again in the reverse direction by a maximum force of 30N. | Pass |
| Shear and Squeeze Points When Setting Up and Folding. | EN 581-1:2006 Clause 5.3.1 | Shear and squeeze points that are created during setting up or folding are acceptable. | NA |
| Shear and Squeeze Points under Influence of Powered Mechanisms | EN 581-1:2006 Clause 5.3.2 | There shall be no accessible shear and squeeze points created by powered mechanisms. | NA |
| Shear and Squeeze Points during Use | EN 581-1:2006 Clause 5.3.3 | There shall be no accessible shear and squeeze points created by loads applied during normal use or the weight of the user during normal movements and actions. | NA |

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**II. Based on EN 581- 3: 2007 Level:** ☐ Camping ☒ Domestic ☐ Contract

| TEST ITEM | TEST METHOD | TEST DESCRIPTION & REQUIREMENT | RESULT |
|---|---|---|---|
| Stability | EN 581– 3:2007 Clause 6.2 | Place the table on the floor surface in a normal position of use. Apply a vertical force of **226** N at 50mm from the outer edge of the table top by means of the vertical force application device. Observation whether the table overturn or not. | Pass |
| Stability (Table where the structure is intended to support a parasol) | EN 581–3: 2007 Clause 6.2.2 | Apply an horizontal force of 30 N at a height of 2200 mm. | NA |
| Vertical static load test on the table top | EN 581–3: 2007 Clause 6.3 | Place the table on the floor surface in a normal position of use.<br>☒ Apply a force of 750N at the geometric center of the table (for L < 1 600mm)<br>☐ Apply two forces of 750N on points placed on the longitudinal axis of the table top with a distance of 400 mm on either side of the transversal axis, by means of the vertical force application device.<br><br>Carry out 10 applications, 5 to 10 sec. between applications. Observation whether the table is damage. | Pass |
| Vertical static load test on end extensions | EN 581–3: 2007 Clause 6.3.2 | Place the table on the floor surface in a normal position of use. Load the table top with a mass evenly distributed. Required to avoid any overturning during the application of the force subsequently Apply a force of __ N on the outside edge at the middle of the width with the end extended. Observation whether the table is damage. | NA |
| Horizontal Fatigue Test | EN 581–3: 2007 Clause 6.4 | Place the table on the floor surface in a normal use position with the feet place against stops. Load the table top up to a maximum of 50kg, as close as possible to the legs. Apply a force of __150_ N along two perpendicular axes for round table application device. Carry out __**10000**__cycles with a frequency of 4 cycles per minute. Observation whether the table is damage.<br>NOTE: If the table tends to tilt in one direction of loading at a load than that specifed, reduce the horizontal force until tilting is just prevented in that direction only. | Pass |

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| TEST ITEM | TEST METHOD | TEST DESCRIPTION & REQUIREMENT | RESULT |
|---|---|---|---|
| Instruction for Use | EN 581- 3: 2007 Clause 7 | Instruction for use shall be provided in the language(s) of the country where the tables are sold. These instructions shall be headed "IMPORTANT, RETAIN FOR FUTURE REFERENCE: READ CAREFULLY" in letters no less than 5 mm high. These instructions shall include at least the following:<br>• Name and address of the producer (manufacturer or supplier);<br>• Information regarding maintenance;<br>• For tables which are not intended to support a parasol, a warning that a parasol shall not be placed on it, or shall be used with a separate base;<br>• Conditions for use of the product (camping, domestic or contract). | Pass |

**NOTE:** NT = Not Tested F = Fail NA = Not Applicable NR = Not Requested

**Remark:**

1) N/A =Not applicable; N/C=Not conducted (Please give not conducted reason)

2) (*)This / these test(s) was / were accredited ISO 17025:2005 by VILAS

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## PHOTO APPENDIX

**A - Sample description:** BENCH / CHAIR - 1

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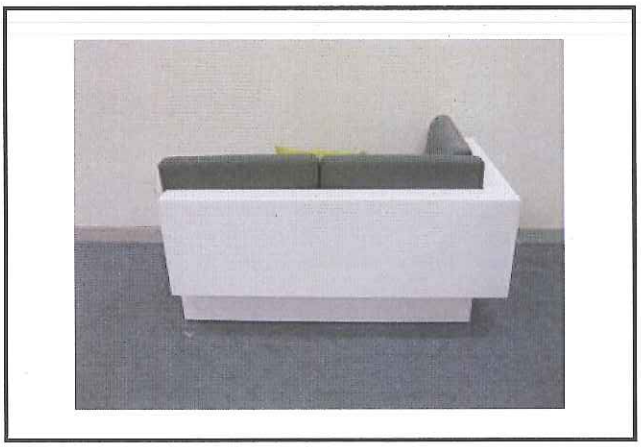
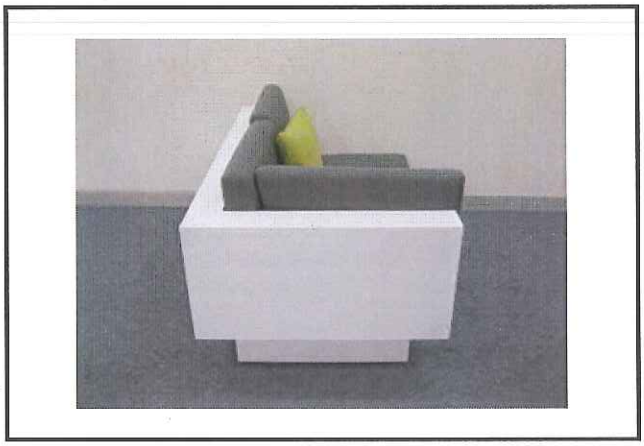
**B - Sample description:** BENCH / CHAIR - 2





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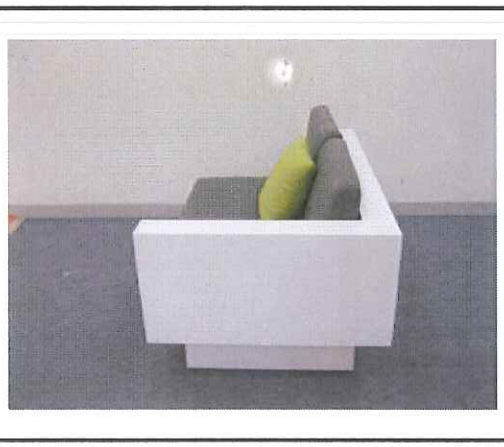
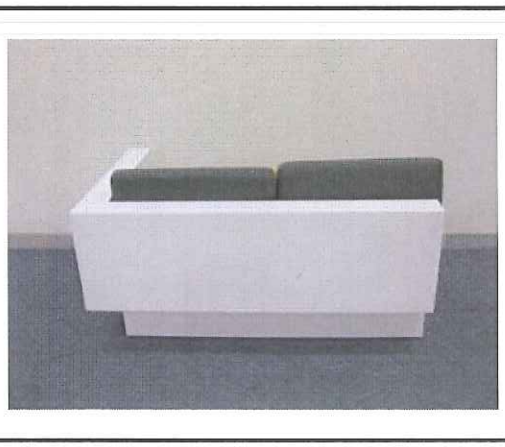
**C - Sample description:** BENCH / CHAIR -3





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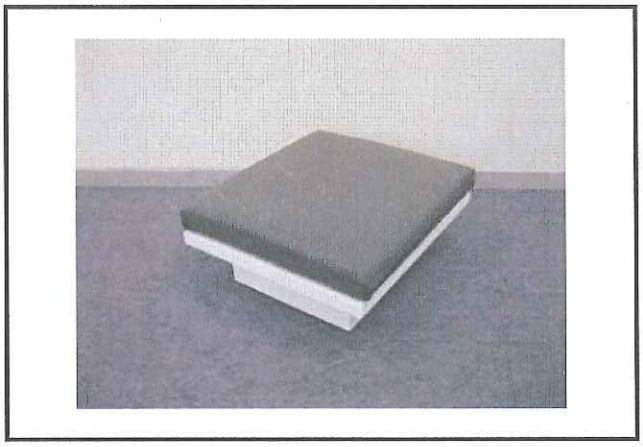
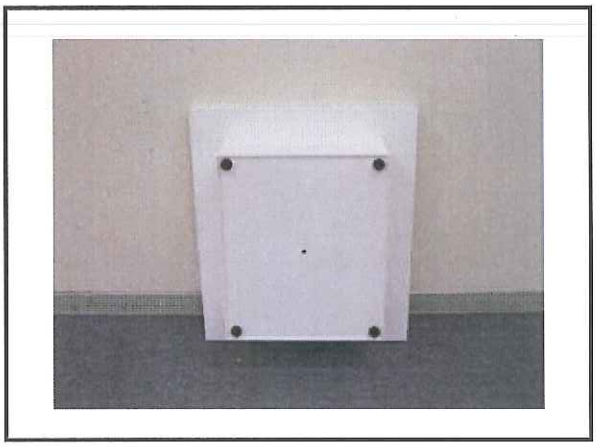
**D - Sample description: TABLE**





*REPORT RESULTS REFER TO SUBMITTED SAMPLE (S) ONLY*

***End of Report***

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