

## RESEARCH TESTING UNECE n°22 Series 05

|                       |                                                                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Job Number</b>     | n/a                                                                                                                                 |
| <b>Report</b>         | Code: Leatt MTB8.0 E2205-Research 12062020<br>Date: 30 June 2020                                                                    |
| <b>Manufacturer</b>   | Name: LEATT Corporation<br>Address: 50 Kiepersol Crescent / Atlas Gardens / Durbanville 7550 / South Africa                         |
| <b>Representative</b> | it does not apply                                                                                                                   |
| <b>Sample</b>         | Helmet model: MTB8.0<br>Approval n°:<br>Stickers from n°: to n°: Batch n°:<br>Arrival date: 11 June 2020 Testing date: 29 June 2020 |

(1) DELETE out what does not apply

### Essential Technical Data

|                          |                                                |
|--------------------------|------------------------------------------------|
| SIZE RANGE               | [S 55-56cm M 57-58cm L 59-60cm XXL 63cm]       |
| SHELL MATERIAL           | [Carbon fiber and other composite]             |
| WEIGHT                   | [S gr 1120, M gr 1150, L gr 1170, XXL gr 1250] |
| RETENTION SYSTEM         | [Double D-rings]                               |
| REFLECTIVE BANDS         | Yes/No                                         |
| ENVIRONMENTAL CONDITIONS | Temperature [°C] [22]                          |

| Used Machine                  | Identifier /Manufacturer | Expiry Date       |
|-------------------------------|--------------------------|-------------------|
| Tracking point of impact      | L4 (AD Engineering)      | Not applicable    |
| Shock absorption / DLS 9000   | L1 (AD Engineering)      | [27 July 2020]    |
| Chin strap resistance         | M0044 (AD Engineering)   | 10/10/2024        |
| Conditioning chamber: Freezer | L10 (Hototech)           | [9 December 2020] |
| Conditioning chamber: Oven    | L9 (Hototech)            | [9 December 2020] |
| Compressibility               | M0030 (AD Engineering)   | 21/05/2025        |
| Chin strap efficiency         | M0038 (AD Engineering)   | 27/05/2022        |

**The Helmet has been tested in the different configurations as supplied by the client.**



## HELMET IMAGES



*Front*



*Side 1*



*Side 2*



*Rear*



**GENERAL SPECIFICATION TEST**
**SIZES XS (53-54) S (55-56) M (57- 58) L (59-60) XL (59-60)-XXL(62-63)**

| Reference                           | General Specification                                       |                               | Result           |      |
|-------------------------------------|-------------------------------------------------------------|-------------------------------|------------------|------|
|                                     |                                                             |                               | Pass<br>(or N/A) | Fail |
| 6.1                                 | Hard shell                                                  |                               | X                |      |
| 6.1                                 | Impact absorption system<br>(see test data in this report)  |                               |                  | X    |
| 6.1                                 | Retention system                                            |                               | X                |      |
| 6.2                                 | Marked "Does not protect chin from impacts" (if applicable) |                               | N/AP             |      |
| 6.4.1                               | Extent of protection                                        |                               | X                |      |
| 6.4.2                               | Nape cylinder                                               |                               | X                |      |
| 6.4.3                               | Protective padding                                          |                               | X                |      |
| 6.5                                 | Outer round surface – Auditive faculties                    |                               | X                |      |
| 6.6                                 | Projections ( 2 mm)                                         |                               | X                |      |
| 6.7                                 | Rivets<br>(h 2 mm, r 1 mm; h 2mm, r 2mm)                    |                               | X                |      |
| 6.8                                 | Helmet interior                                             |                               | X                |      |
| 6.9                                 | Assembly                                                    |                               | X                |      |
| 6.10                                | Chin strap abrasion                                         |                               | X                |      |
| 6.11 - 6.11.1                       | Retention system – Chin strap breadth ( 20 mm)              |                               | X                |      |
| 6.11.2                              | Under-chin                                                  |                               | X                |      |
| 6.11.3                              | Chin strap regulation system                                |                               | X                |      |
| 6.11.4                              | Rigid parts                                                 |                               | X                |      |
| 6.11.5                              | Buckle – "Double D" or "Roll"                               |                               | N/AP             |      |
| 6.11.6                              | Open strip                                                  |                               | N/AP             |      |
| 6.11.7                              | Quick release (general requirement)                         |                               | N/AP             |      |
| 6.11.8                              | Quick release (tests par. 7.3, 7.6, 7.7)                    |                               | N/AP             |      |
| 6.11.9                              | Wrong buckle use                                            |                               | N/AP             |      |
| 6.12                                | Material properties (manufacturer declaration)              |                               | X                |      |
| 6.13                                | Helmet breaking                                             |                               | X                |      |
| 6.14, 6.14.3.1<br>6.14.3.2 6.14.3.3 | Peripheral vision:                                          | Lateral visual clearance 105° | X                |      |
|                                     |                                                             | Upward visual clearance 7°    | X                |      |
|                                     |                                                             | Downward visual clearance 45° | X                |      |
| 6.16.1 to 6.16.6                    | Reflective parts (see test reports)                         |                               | N/AP             |      |



**SPECIFICATION**

|                     |                                                                                                     |
|---------------------|-----------------------------------------------------------------------------------------------------|
| H.F. Size           | [54 to 62]                                                                                          |
| Impact point        | B / P / X / R / S                                                                                   |
| Anvil               | Kerbstone / Flat                                                                                    |
| Conditioning [°C]   |                                                                                                     |
| AMB                 | 20 °C ± 5 °C with a relative humidity of 65% ± 5%, for more than 4 hours                            |
| LOW                 | -20 °C ± 5 °C for more than 4 hours and less than 6 hours                                           |
| HIGH                | +50 °C ± 5 °C for more than 4 hours and less than 6 hours                                           |
| UV+H <sub>2</sub> O | Ultraviolet radiation by a 125-watt xenon- 48 hours<br>Water spray 4 to 6 hours, 1 litre per minute |
| Speed [m/s]         | 7.5 m/s + 0.15 m/s (5.5 + 0.15 m/s for the S point)                                                 |
| HIC                 | ≤ 2400                                                                                              |
| Deceleration        | ≤ 275                                                                                               |

**SHOCK ABSORPTION TESTS**

Ref. 7.3

**Helmet size XXL (63)**

| Sticker n° | Helmet Internal Id | H.F. Size | Impact point | Anvil | Cond. [°C] | Speed [m/s] | Deceleration ≤ 275 [g] | HIC ≤ 2400 |
|------------|--------------------|-----------|--------------|-------|------------|-------------|------------------------|------------|
| -          | 20-0380            | 62        | B            | FLAT  | AMB        | 7.49        | 136                    | 1010       |
|            |                    |           | X            | FLAT  |            | 7.55        | 152                    | 1225       |
|            |                    |           | P            | FLAT  |            | 7.55        | 153                    | 1386       |
|            |                    |           | R            | FLAT  |            | 7.51        | 177                    | 1591       |
|            |                    |           | S            | FLAT  |            | 5.52        | 114                    | 213        |
| -          | 20-0379            | 62        | B            | KERB  | AMB        | 7.49        | 110                    | 731        |
|            |                    |           | X            | KERB  |            | 7.51        | 200                    | 1221       |
|            |                    |           | P            | KERB  |            | 7.51        | 133                    | 982        |
|            |                    |           | R            | KERB  |            | 7.49        | 113                    | 838        |
| -          | 20-0377            | 62        | B            | KERB  | +50        | 7.51        | 106                    | 703        |
|            |                    |           | X            | KERB  |            | 7.49        | 231                    | 1278       |
|            |                    |           | P            | KERB  |            | 7.53        | 142                    | 907        |
|            |                    |           | R            | KERB  |            | 7.53        | 125                    | 904        |
| -          | 20-0378            | 62        | B            | FLAT  | -20        | 7.51        | 130                    | 1030       |
|            |                    |           | X            | FLAT  |            | 7.51        | 177                    | 1471       |
|            |                    |           | P            | FLAT  |            | 7.53        | 166                    | 1402       |
|            |                    |           | R            | FLAT  |            | 7.51        | 178                    | 1368       |
|            |                    |           | S            | FLAT  |            | 5.52        | 103                    | 195        |
| -          | 20-0381            | 62        | B            | KERB  | UV+WET     | 7.53        | 112                    | 716        |
|            |                    |           | X            | KERB  |            | 7.49        | 167                    | 1100       |
|            |                    |           | P            | KERB  |            | 7.51        | 123                    | 926        |
|            |                    |           | R            | KERB  |            | 7.55        | 125                    | 880        |



**Helmet size L (59-60)**

| Sticker n° | Helmet Internal Id | H.F. Size | Impact point | Anvil | Cond. [°C] | Speed [m/s] | Deceleration ≤ 275 [g] | HIC ≤ 2400 |
|------------|--------------------|-----------|--------------|-------|------------|-------------|------------------------|------------|
| -          | 20-0375            | 60        | B            | FLAT  | AMB        | 7.51        | 141                    | 996        |
|            |                    |           | X            | FLAT  |            | 7.51        | 182                    | 1556       |
|            |                    |           | P            | FLAT  |            | 7.55        | 165                    | 1426       |
|            |                    |           | R            | FLAT  |            | 7.49        | 165                    | 1401       |
|            |                    |           | S            | FLAT  |            | 5.56        | 76                     | 142        |
| -          | 20-0374            | 60        | B            | KERB  | AMB        | 7.46        | 109                    | 1198       |
|            |                    |           | X            | KERB  |            | 7.49        | 181                    | 1019       |
|            |                    |           | P            | KERB  |            | 7.51        | 137                    | 1024       |
|            |                    |           | R            | KERB  |            | 7.49        | 183                    | 698        |
| -          | 20-0372            | 60        | B            | KERB  | +50        | 7.49        | 105                    | 650        |
|            |                    |           | X            | KERB  |            | 7.53        | 208                    | 1282       |
|            |                    |           | P            | KERB  |            | 7.51        | 136                    | 1041       |
|            |                    |           | R            | KERB  |            | 7.51        | 143                    | 984        |
| -          | 20-0373            | 60        | B            | FLAT  | -20        | 7.53        | 137                    | 989        |
|            |                    |           | X            | FLAT  |            | 7.49        | 176                    | 1493       |
|            |                    |           | P            | FLAT  |            | 7.53        | 171                    | 1455       |
|            |                    |           | R            | FLAT  |            | 7.55        | 160                    | 1363       |
|            |                    |           | S            | FLAT  |            | 5.53        | 109                    | 256        |
| -          | 20-0376            | 60        | B            | KERB  | UV+WET     | 7.51        | 157                    | 871        |
|            |                    |           | X            | KERB  |            | 7.51        | 253                    | 1251       |
|            |                    |           | P            | KERB  |            | 7.51        | 130                    | 964        |
|            |                    |           | R            | KERB  |            | 7.53        | 256                    | 1221       |

**Helmet size M (57-58)**

| Sticker n° | Helmet Internal Id | H.F. Size | Impact point | Anvil | Cond. [°C] | Speed [m/s] | Deceleration ≤ 275 [g] | HIC ≤ 2400 |
|------------|--------------------|-----------|--------------|-------|------------|-------------|------------------------|------------|
| -          | 20-0365            | 57        | B            | KERB  | +50        | 7.51        | 104                    | 731        |
|            |                    |           | X            | KERB  |            | 7.55        | 176                    | 1243       |
|            |                    |           | P            | KERB  |            | 7.53        | 157                    | 1084       |
|            |                    |           | R            | KERB  |            | 7.51        | 150                    | 1026       |
| -          | 20-0366            | 57        | B            | FLAT  | -20        | 7.53        | 146                    | 1105       |
|            |                    |           | X            | FLAT  |            | 7.53        | 185                    | 1626       |
|            |                    |           | P            | FLAT  |            | 7.53        | 179                    | 1638       |
|            |                    |           | R            | FLAT  |            | 7.49        | 163                    | 1423       |
|            |                    |           | S            | FLAT  |            | 5.54        | 37                     | 68         |



**Helmet size S (55-56)**

| Sticker n° | Helmet Internal Id | H.F. Size | Impact point | Anvil | Cond. [°C] | Speed [m/s] | Deceleration ≤ 275 [g] | HIC ≤ 2400 |
|------------|--------------------|-----------|--------------|-------|------------|-------------|------------------------|------------|
| -          | 20-0370            | 54        | B            | FLAT  | AMB        | 7.49        | 159                    | 1152       |
|            |                    |           | X            | FLAT  |            | 7.53        | 188                    | 1603       |
|            |                    |           | P            | FLAT  |            | 7.51        | 185                    | 1579       |
|            |                    |           | R            | FLAT  |            | 7.51        | 185                    | 1801       |
|            |                    |           | S            | FLAT  |            | 5.51        | 45                     | 66         |
| -          | 20-0369            | 54        | B            | KERB  | AMB        | 7.51        | 123                    | 794        |
|            |                    |           | X            | KERB  |            | 7.49        | 170                    | 1251       |
|            |                    |           | P            | KERB  |            | 7.53        | 172                    | 1174       |
|            |                    |           | R            | KERB  |            | 7.51        | 121                    | 985        |
| -          | 20-0367            | 54        | B            | KERB  | +50        | 7.51        | 130                    | 689        |
|            |                    |           | X            | KERB  |            | 7.51        | 181                    | 1270       |
|            |                    |           | P            | KERB  |            | 7.51        | 180                    | 1173       |
|            |                    |           | R            | KERB  |            | 7.53        | 125                    | 933        |
| -          | 20-0368            | 54        | B            | FLAT  | -20        | 7.49        | 154                    | 1038       |
|            |                    |           | X            | FLAT  |            | 7.53        | 183                    | 1659       |
|            |                    |           | P            | FLAT  |            | 7.49        | 201                    | 1680       |
|            |                    |           | R            | FLAT  |            | 7.49        | 184                    | 1755       |
|            |                    |           | S            | FLAT  |            | 5.48        | 45                     | 68         |
| -          | 20-0371            | 54        | B            | KERB  | UV+WET     | 7.53        | 130                    | 739        |
|            |                    |           | X            | KERB  |            | 7.49        | 172                    | 1301       |
|            |                    |           | P            | KERB  |            | 7.51        | 172                    | 1174       |
|            |                    |           | R            | KERB  |            | 7.53        | 125                    | 995        |



**TEST FOR PROJECTION AND SURFACE FRICTION METHOD B**
**Ref. 7.4.2**

| Sticker n° | Helmet Internal Id | Tested Point | Result |      |
|------------|--------------------|--------------|--------|------|
|            |                    |              | Pass   | Fail |
| -          | 20-0381            | SIDE         | X      | -    |
| -          | 20-0381            | Pick         | X      | -    |

[Complete the table with "X" or "-" as applicable]

**RIGIDITY TEST**
**Ref. 7.5**

| Sticker n° | Helmet Internal Id | Size | Load Direction | Deformation [mm]   |                         |                          |
|------------|--------------------|------|----------------|--------------------|-------------------------|--------------------------|
|            |                    |      |                | Initial (load 30N) | Max 40 [mm] (load 630N) | Final 15 [mm] (load 30N) |
| -          | 20-0382            | XL   | Longitudinal   | 1                  | 12                      | 2                        |
| -          | 20-0383            | XL   | Transversal    | 1                  | 11                      | 2                        |

**RETENTION SYSTEM STRENGTH TEST**
**Ref. 7.6**

| Sticker n° | Helmet Internal Id | Size | Chin Strap | Dynamic 35 [mm] | Residual 25 [mm] |
|------------|--------------------|------|------------|-----------------|------------------|
| -          | 20-0384            | XS   | DD         | 32              | 12               |

**ROLL OFF TEST**
**Ref. 7.7**

| Sticker n° | Helmet Internal Id | Size | Chin strap | Roll off Angle ≤ 30° |
|------------|--------------------|------|------------|----------------------|
| -          | 20-0384            | XS   | DD         | 23                   |

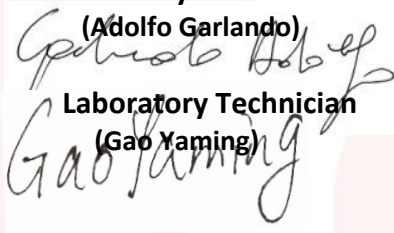


**REFLECTIVE PARTS**

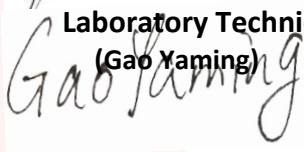
| Reference | Test                                                          | Result      |      |
|-----------|---------------------------------------------------------------|-------------|------|
|           |                                                               | Pass or N/A | Fail |
| 6.16.2    | Reflective parts (Geometry requirements)                      | N/AP        |      |
| 6.16.3    | Reflective parts (Colorimetric requirements)                  | N/AP        |      |
| 6.16.4    | Reflective parts (Photometric requirements)                   | N/AP        |      |
| 6.16.5    | Reflective parts (Resistance to external agents requirements) | N/AP        |      |
| 6.16.6    | Reflective parts (Compatibility of materials requirements)    | N/AP        |      |

THE SAMPLES TESTED MEET THE REQUIREMENTS OF THE REFERENCE NORM.

**Laboratory Technician**  
(Adolfo Garlando)



**Laboratory Technician**  
(Gao Yaming)



**Laboratory Manager**  
(Juan Pablo Cuesta)

