



## COMPLIANCE TESTING FOR EN 1078:2012+A1 HELMETS USED FOR PEDAL CYCLISTS AND FOR USERS OF SKATEBOARDS AND ROLLER SKATES

<b>Brand</b>	: LEATT
<b>Model</b>	: LT1701-MTB ENDURO 3.0
<b>Tested Size</b>	: S (51-55 cm)
<b>Lot Number</b>	: TBD
<b>Country of Origin</b>	: China
<b>Age Grading</b>	: 5 and older
<b>Children's Product</b>	: Not Specified

Prepared For:

**Leatt Corporation**  
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**Issue Date: 12 April 2021**

**Final Report: 904.06126.004**

Tested by:

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Contract File No.: 904.06126  
Test File: 004

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Technician: Edward Wang  
Test Date: 08 April 2021

## HELMET DATA

<b>Brand:</b>	LEATT	<b>Retention System:</b>	Fidlock
<b>Model:</b>	LT1701-MTB ENDURO 3.0	<b>Age Grading:</b>	5 and older
<b>Manufacturer:</b>	LEATT CORPORATION	<b>Test Headform Size:</b>	EN 960 Size 535 (E)
<b>Date of Manufacture:</b>	05/16	<b>Helmet Positioning Index (HPI):</b>	ACT Determined: 40 mm *Measured from the basic plane
<b>Tested Size:</b>	51-55 cm	<b>EPS Bead Color:</b>	Black

Helmet Number:	Weight (g):
1	708
2	705
3	704
4	707
<b>Average:</b>	706

Conditioned Temperatures	
<b>Lab Humidity:</b>	57%
<b>Ambient Lab Temp.:</b>	22°C
<b>High Temperature</b>	50°C
<b>Low Temperature:</b>	-20°C
<b>Artificial Aging:</b>	33°C

### Comments:

- All helmets were received in undamaged condition and were appropriate for testing.
- The helmets were exposed to the high ( $50 \pm 2^\circ\text{C}$ ) and low ( $-20 \pm 2^\circ\text{C}$ ) temperatures for not less than 4 hours prior to testing and not exposed more than 6 hours.
- Artificial ageing conducted in accordance to section 5.4.2.3: The outer surface of the protective helmet shall be exposed successively to: ultraviolet irradiation by a 125 W xenon-filled quartz lamp for 48 h at a range of 250 mm; spraying for 4 h to 6 h with water at ambient temperature at the rate of 1 l/min.
- The sequence of tests performed on each helmet size and the tests performed on the same sample are given in the table below:

**Table 2 — Sequence of Test and Tests per Sample**

Performance Test	Sequence of Test	Sample Number		
Retention system effectiveness (5.6)	1st	1	---	---
Shock absorbing capacity (5.4)	2nd	1	2	3
Retention system strength (5.5)	3rd	---	2	3

- The fourth sample is reserved as a reference sample, which can be used by the test laboratory in case of doubt about any of the performance requirements.

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## TEST SUMMARY

Section	Requirement	Pass/Fail
4.1	<b>Materials:</b> 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.	NT
4.2	<b>Construction:</b> The helmet normally consists of a means of absorbing impact energy and means of retaining the helmet on the head in an accident. 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.  <b>NOTE:</b> Helmets should: <ul style="list-style-type: none"> <li>• have low weight</li> <li>• be ventilating</li> <li>• be easy to put on and take off</li> <li>• be usable with spectacles</li> <li>• not significantly interfere with the ability of the user to hear traffic noise</li> </ul>	Pass
4.3	<b>Field of vision:</b> When tested in accordance with 5.7 there shall be no occultation in the field of vision bounded by angles as follows: <ul style="list-style-type: none"> <li>• horizontally: min. 105° from the longitudinal vertical median plane to the left and right hand sides</li> <li>• upwards: min. 25° from the reference plane</li> <li>• downwards: min. 45° from the basic plane</li> </ul>	Pass
4.4	<b>Shock absorbing capacity:</b> The helmet shall give protection to the forehead, rear, sides, temples and crown of the head. 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.  <b>NOTE:</b> These are theoretically equivalent to 1 497 mm and 1 064 mm drop heights respectively.	Pass
4.5	<b>Durability:</b> After being tested the helmet shall not exhibit damage that could cause significant injury to the wearer (sharp edges, points).	Pass
4.6	<b>Retention system:</b> 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
4.6.1	<b>General:</b> 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
4.6.2	<b>Chin Strap:</b> 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

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4.6.3	<b>Fastening Device:</b> 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
4.6.4	<b>Color:</b> No part of the retention system shall be colored green.	Pass
4.6.5	<b>Strength:</b> 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.  <b>NOTE:</b> 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.	Pass
4.6.6	<b>Effectiveness:</b> When tested in accordance with 5.6 the helmet shall not come off the headform.	Pass
4.6.7	<b>Ease of Release:</b> 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
6	<b>Marking -</b> Each helmet shall be marked so that the following information is legible and easily visible to the user and is likely to remain legible throughout the life of the helmet:	Pass
	a) Number of the European Standard	Pass
	b) Name or trademark of the manufacturer	Pass
	c) Designation of the model	Pass
	d) Designation, which shall be one or more of the following: Helmet for pedal cyclists, skateboarders or roller skaters	Pass
	e) Size or size range of the helmet, quoted as the circumference (in centimeters) of the head which the helmet is intended to fit	Pass
	f) Weight of the helmet (the average mass in grams determined according to 5.2)	Pass
	g) Year and quarter of manufacture	Pass
	h) The following text: "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."	Pass
	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.	Pass
	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.	Pass

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7	<b>Information supplied by the manufacturers (including importers):</b> With every helmet, clear information in the language of the country of sale shall be given as follows:	---
	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;	Pass
	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;	Pass
	c) How the helmet should be positioned on the head to ensure the intended protection is provided (e.g. hat it should be placed so as to protect the forehead and not be pushed too far over the back of the head);	Pass
	d) That a helmet cannot always protect against injury;	Pass
	e) That a helmet subjected to a severe impact should be discarded and destroyed;	Pass
	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.	Pass

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**RETENTION SYSTEM EFFECTIVENESS TEST SUMMARY**

Helmet ID	Condition	Headform Size	Pass/Fail
904.06126.004-1	Ambient temperature	E	Pass

**IMPACT TEST SUMMARY REPORT**

Helmet ID	Condition	Headform Size	Impact Location	Anvil	Velocity (m/sec)	Peak Acc. (g)	Pass/Fail
904.06126.004-1	High temperature	E	FRONT	KERBSTONE	4.6192	116.4	Pass
			LF SIDE	FLAT	5.4658	192.7	Pass
904.06126.004-2	Low temperature	E	CROWN	FLAT	5.4531	213.1	Pass
			REAR	KERBSTONE	4.6512	132.3	Pass
904.06126.004-3	Artificial aging	E	LF SIDE	KERBSTONE	4.6159	121.1	Pass
			FRONT	FLAT	5.4536	164.4	Pass

**RETENTION SYSTEM STRENGTH TEST SUMMARY**

Helmet ID	Condition	Headform Size	Dynamic Extension (mm)	Residual Extension (mm)	Pass/Fail
904.06126.004-2	Low temperature	E	16.5	16.1	Pass
904.06126.004-3	Artificial aging	E	17.3	6.3	Pass

**FIELD OF VISION TEST SUMMARY**

Requirements		Test Results
Horizontal	Minimum of 105° to the left and right sides	Pass
Upward	Minimum of 25° from the reference plan	Pass
Downward	Minimum of 45° from the basic plan	Pass

Reviewed by: John Bogler

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## EQUIPMENT INFORMATION

DROP SYSTEM: CADEX Triaxial Impact Machine - Monorail  
SOFTWARE: CADEX Impact Control Software

ITEM	MODEL	S/N
Computer	CADEX	23160
Data Acquisition Board	CADEX	13EC16A
Time Gate	CADEX	HVTG120120810-1
Control Box	CADEX	CCS 120120810-1

## HEADFORMS

ITEM	HEADFORM	MODEL	ASSEMBLY WT., GRAMS
Tri-Axial	EN960 495 (A)	CADEX	3180
Tri-Axial	EN960 535 (E)	CADEX	4156
Tri-Axial	EN960 575 (J)	CADEX	4752
Tri-Axial	EN960 605 (M)	CADEX	5610
Tri-Axial	EN960 625 (O)	CADEX	6182

## IMPACT MEASURING SENSORS

ITEM	TYPE	MODEL	S/N
Tri-Axial	Accelerometer - axis X (10.31 mV/G)	PCB 356B21	LW125217
Tri-Axial	Accelerometer - axis Y (10.31 mV/G)	PCB 356B21	LW125217
Tri-Axial	Accelerometer - axis Z (10.31 mV/G)	PCB 356B21	LW125217

## CONDITIONING EQUIPMENT

ITEM	MANUFACTURE	MODEL	S/N
Oven	Shanghai Boxun	9240M0BE	8285
Freezer	Haier	DW-50W225	F8LMJ
UV Aging Chamber	Hototech	HT-6014	12099
Environmental Monitoring	Anymeter	TH-602F	3238

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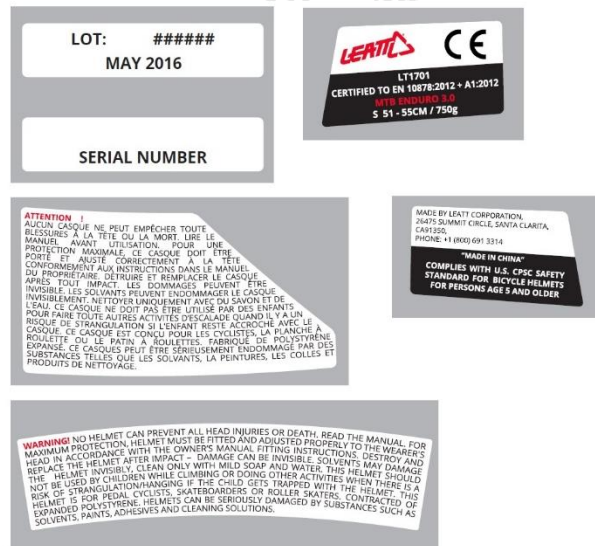
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904.06126.004 – LT1701-MTB ENDURO 3.0 (Multi)



904.06126.004 – LT1701-MTB ENDURO 3.0 (Multi) – Labels

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## NOTICE

1. The report is not effective without the signature of the person(s) authorizing the report (ACT Lab's authorized signatory is John A. Bogler (President)).
2. The report is not valid if altered.
3. Claims have to be made within 15 days after receipt of this report.
4. The results of this test report relate only to the items tested.
5. The results apply to the samples as received.
6. For reports that contain results from external test service providers: Results from external test service providers are supplied by the customer and can affect validity of results.
7. Decision rule applied according to "ILAC-G8:03/2009 - Guidelines on the Reporting of Compliance with Specification".

\*\*\*\*\***END OF REPORT**\*\*\*\*\*

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