

SAFETY COMPLIANCE TESTING FOR FMVSS No. 218 MOTORCYCLE HELMETS

Brand: LEATT
Model: MOTO 9.5
Tested Size: S (55-56 cm)

Prepared For:

Leatt Corporation
12 Kiepersol Crescent,
Atlas Gardens Business Park,
Cape Farms, Cape Town,
7550, South Africa



Issue Date: 26 April 2020

Final Report: 904.04491.001

Tested By:

Taicang ACT Sporting Goods Testing Co., Ltd.
No. 35 Zhenghe Road,
Ludu Town, Taicang City, Suzhou,
Jiangsu Province, China 215412
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Contract File No.: 904.04491

Test File: 001

Control Document: Official ACT/FMVSS No.218/Report Template TP-07 CN 19 November 2019 Rev.9
SharePoint/GlobalResourceLibrary/Reporting/ReportTemplates/Helmets/FMVSS No.218

Technician: Edward Wang

Test Date: 22 April 2020



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PURPOSE OF COMPLIANCE TEST

Purpose:

The purpose of this test was to determine if the motorcycle helmets supplied by:

EON Sporting Goods Co., Ltd.

Met the requirements of

Federal Motor Vehicle Safety Standard
No. 218: Motorcycle Helmets effective
May 13, 2013.

All samples received were in good
condition and appropriate for these tests.

Test Procedure:

This test was performed following
TP-218-07 and ACT Lab Helmet Cadex
Testing Manual 2.3



HELMET DATA

HELMET BRAND NAME: LEATT

HELMET MODEL DESIGNATION: MOTO 9.5

HELMET MANUFACTURER: EON Sporting Goods

HELMET SIZE: S (55-56 cm)

HELMET COVERAGE: Partial: _____ Full: _____ Complete: X

HELMET POSITIONING INDEX: 54 mm

SHELL MATERIAL: Carbon Fiber and other Composite Materials

LINER MATERIAL: Expanded Polystyrene

BUCKLE DESCRIPTION: Double D-Rings

HELMET	A Ambient	B Low Temp	C High Temp	D Water Immersed	E Spare
SHELL COLOR/PATTERN	Carbon	Carbon	Carbon	Carbon	Carbon
WEIGHT (grams)	1122	1123	1132	1161	1190
MONTH & YEAR OF MANUFACTURE	01/20	01/20	01/20	01/20	01/20

Reviewed by: John Bogler

COMMENTS:

1. All helmets were received in undamaged condition and were appropriate for testing.
2. Weights listed above for helmets A-D are as tested with the visor removed.
3. Weight for helmet E is complete with all components in place.
4. ACT determined the HPI information prior to testing.

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SUMMARY OF TEST RESULTS

INDICATE Pass or Fail

HELMET	A	B	C	D
TEST	AMBIENT	LOW TEMP	HIGH TEMP	WATER IMMERSED
IMPACT	Pass	Pass	Pass	Pass
PENETRATION	Pass	Pass	Pass	Pass
RETENTION	Pass	Pass	Pass	Pass

INDICATE Pass or Fail

TEST	PASS/FAIL
PERIPHERAL VISION	Pass
PROJECTIONS	Pass
LABELING	*Pass

COMMENT:

1. S5.6 Labeling: *Client has supplied digital artwork for section 5.6.2. ACT has only evaluated that the required content is present, additional formatting, appearance and permanency requirements unable to be evaluated.

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SELECTION OF APPROPRIATE HEADFORM

Paragraph S6.1 - If the helmet size designation falls into more than one of three size ranges, it shall be tested on each appropriate headform.

HELMET SIZE DESIGNATION	HEADFORM SIZE
Less than or equal to 6-3/4 (European Size 54)	SMALL
Greater than 6-3/4, but less than or equal to 7-1/2 (European Size 60)	MEDIUM
Greater than 7-1/2 (European 60)	LARGE

COMMENTS:

The manufacturer marked the helmet with its corresponding discrete size: S (55-56 cm),
Headform Size: DOT MEDIUM.

CONDITIONING FOR TESTING — Paragraph S6.4 — The protective headgear shall be conditioned for not less than 4 hours and no more than 24 hours, in the specified environmental condition shown below, prior to test.

Ambient Conditions	16°C to 26°C (61°F to 79°F); 30% to 70% Relative Humidity
Low Temperature	-15°C to -5°C (5°F to 23°F)
High Temperature	45°C to 55°C (113°F to 131°F)
Water Immersion	16°C to 26°C (61°F to 79°F)

The maximum time during which the protective headgear may be out of the conditioning environment shall not exceed 4 minutes. It must then be returned to the conditioned environment for a minimum of 3 minutes for each minute or portion of a minute in excess of 4 minutes out of the conditioning environment or 12 hours, whichever is less, prior to resumption of testing.

AVERAGE LAB TEMPERATURE : 22 °C ; AVERAGE LAB HUMIDITY : 57 %

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Test Date: 22 April 2020

**IMPACT ATTENUATION**

Helmet ID	Condition	Impact #	Impact Location	Anvil	Drop Height (cm)	Velocity (m/sec)	Duration at 150G (ms)	Duration at 200G (ms)	Peak Acc. (g)	Pass/Fail
904.04491.001-A	Ambient	1	LF SIDE	FLAT	192.0	5.9790	1.31	0.00	157.3	Pass
904.04491.001-A	Ambient	2	LF SIDE	FLAT	192.0	6.0286	2.68	0.00	184.9	Pass
904.04491.001-A	Ambient	3	REAR	FLAT	192.0	6.0079	2.31	0.00	160.8	Pass
904.04491.001-A	Ambient	4	REAR	FLAT	192.0	6.0185	2.98	0.00	180.9	Pass
904.04491.001-A	Ambient	5	FRONT	HEMI	145.0	5.2287	0.00	0.00	64.9	Pass
904.04491.001-A	Ambient	6	FRONT	HEMI	145.0	5.2264	0.00	0.00	74.2	Pass
904.04491.001-A	Ambient	7	RT SIDE	HEMI	145.0	5.1960	0.00	0.00	109.1	Pass
904.04491.001-A	Ambient	8	RT SIDE	HEMI	145.0	5.1700	0.00	0.00	121.4	Pass
904.04491.001-B	Cold	1	LF SIDE	FLAT	192.0	6.0247	0.39	0.00	152.9	Pass
904.04491.001-B	Cold	2	LF SIDE	FLAT	192.0	6.0265	2.72	0.00	178.0	Pass
904.04491.001-B	Cold	3	REAR	FLAT	192.0	6.0184	2.54	0.00	157.8	Pass
904.04491.001-B	Cold	4	REAR	FLAT	192.0	6.0046	2.91	0.00	173.5	Pass
904.04491.001-B	Cold	5	FRONT	HEMI	145.0	5.2130	0.00	0.00	83.6	Pass
904.04491.001-B	Cold	6	FRONT	HEMI	145.0	5.2132	0.00	0.00	87.5	Pass
904.04491.001-B	Cold	7	RT SIDE	HEMI	145.0	5.1763	0.00	0.00	111.1	Pass
904.04491.001-B	Cold	8	RT SIDE	HEMI	145.0	5.1815	0.00	0.00	128.8	Pass
904.04491.001-C	Hot	1	LF SIDE	FLAT	192.0	6.0481	0.00	0.00	146.0	Pass
904.04491.001-C	Hot	2	LF SIDE	FLAT	192.0	6.0277	2.45	0.00	173.1	Pass
904.04491.001-C	Hot	3	REAR	FLAT	192.0	6.0145	0.42	0.00	151.4	Pass
904.04491.001-C	Hot	4	REAR	FLAT	192.0	5.9918	2.51	0.00	168.1	Pass
904.04491.001-C	Hot	5	FRONT	HEMI	145.0	5.2102	0.00	0.00	62.4	Pass
904.04491.001-C	Hot	6	FRONT	HEMI	145.0	5.2259	0.00	0.00	125.9	Pass
904.04491.001-C	Hot	7	RT SIDE	HEMI	145.0	5.1961	0.00	0.00	95.4	Pass
904.04491.001-C	Hot	8	RT SIDE	HEMI	145.0	5.1935	0.00	0.00	116.5	Pass
904.04491.001-D	Wet	1	LF SIDE	FLAT	192.0	6.0328	0.56	0.00	151.4	Pass
904.04491.001-D	Wet	2	LF SIDE	FLAT	192.0	6.0413	2.55	0.00	169.1	Pass
904.04491.001-D	Wet	3	REAR	FLAT	192.0	6.0200	0.00	0.00	138.6	Pass
904.04491.001-D	Wet	4	REAR	FLAT	192.0	6.0212	0.42	0.00	153.4	Pass
904.04491.001-D	Wet	5	FRONT	HEMI	145.0	5.2174	0.00	0.00	84.1	Pass
904.04491.001-D	Wet	6	FRONT	HEMI	145.0	5.2123	0.00	0.00	76.7	Pass
904.04491.001-D	Wet	7	RT SIDE	HEMI	145.0	5.2074	0.00	0.00	96.4	Pass
904.04491.001-D	Wet	8	RT SIDE	HEMI	145.0	5.1895	0.00	0.00	124.9	Pass

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PENETRATION

Paragraph S5.2 and S7.2

WEIGHT OF STRIKER: 2.95 to 3.06 kg (6 pounds, 8 ounces to 6 pounds, 12 ounces)

POINT OF STRIKER: Radius = 0.5 ± 0.1 mm (0.02 ± 0.004 in.), included angle of $60^\circ \pm 0.5^\circ$, hardness minimum of 60 Rockwell "C" Scale and a cone height of not less than 3.8 ± 0.038 cm (1.5 ± 0.015 in.).

HEIGHT OF FALL: $300 \text{ cm} \pm 1.5 \text{ cm}$, measured from the tip of the striker point to the outer surface of the mounted protective headgear.

FAILURE CRITERION: When tested, the protective headgear shall be failed if the penetrator has made an indentation in the headform.

TEST	HELMET	TEST LOCATION	PASS	FAIL	CONDITIONS
1	A	Crown	X		AMBIENT
2	A	Rear Right	X		AMBIENT
3	B	Crown	X		LOW TEMPERATURE
4	B	Rear Right	X		LOW TEMPERATURE
5	C	Crown	X		HIGH TEMPERATURE
6	C	Rear Right	X		HIGH TEMPERATURE
7	D	Crown	X		WATER IMMERSED
8	D	Rear Right	X		WATER IMMERSED

COMMENT: Photographs of penetration test locations are found in Appendix C.

RETENTION SYSTEM

Paragraph S5.3 and S7.3

REQUIREMENTS:

READING	APPLIED LOAD
INITIAL	22.68 kg, + 4.54 kg, - 0 kg (50.0 lbs., + 10 lbs., - 0 lbs.)
FINAL	136 kg, + 0 kg, - 2.3 kg (300.0 lbs., + 0 lbs., - 5 lbs.)

ELONGATION NOT TO EXCEED 2.54 cm (1.0 INCH) AFTER LOAD INCREASE

HELMET	CONDITIONS	ELONGATION cm
A	AMBIENT	1.07
B	LOW TEMPERATURE	1.23
C	HIGH TEMPERATURE	1.23
D	WATER IMMERSED	1.05

PERIPHERAL VISION

CONFIGURATION - Paragraph S5.4 - Helmet shall provide a minimum peripheral vision of 105° to each side of the midsagittal plane. The brow opening shall be at least 2.54 cm (1 inch) above all points in the basic plane that are within the angles of peripheral vision.

	REQUIREMENTS	TEST RESULTS
PERIPHERAL VISION	> 105°	Pass
BROW OPENING	> 2.5 cm (1 inch)	Pass

PROJECTIONS - Paragraph S5.5

REQUIREMENTS:

PROJECTION	REQUIREMENT
Internal rigid	None
External rigid	Operational, shall not protrude more than 5 mm

TEST RESULTS:

PROJECTION	PRESENT?	HEIGHT (mm)
Internal	None	Not Applicable
External	None	Not Applicable

LABELING

S5.6.1 *Labeling* - Each helmet shall be permanently and legibly labeled, in a manner such that the label(s) can be easily read without removing padding or any other permanent part, with the following:

Required Information	Content/Format	Permanent
Manufacturer's name	Pass	Pass
Discrete size	Pass	Pass
Month and year of manufacture	Pass	Pass
Instructions to the purchaser as follows:	-----	-----
"Shell and liner constructed of (identify type(s) of materials)."	Pass	Pass
"Helmet can be seriously damaged by some common substances without damage being visible to the user."	Pass	Pass
"Apply only the following: (Recommended cleaning agents, paints, adhesives, etc., as appropriate.)"	Pass	Pass
"Make no modifications."	Pass	Pass
"Fasten helmet securely."	Pass	Pass
"If helmet experiences a severe blow, return it to the manufacturer for inspection, or destroy it and replace it."	Pass	Pass

COMMENT:

- Labels were determined to be both easily read and permanent based on the TP-218-07, Section 12.5.4.

LABELING

S5.6.2 Certification. Each helmet shall be labeled permanently and legibly with a label, constituting the manufacturer's certification that the helmet conforms to the applicable Federal motor vehicle safety standards, that is separate from the label(s) used to comply with S5.6.1, and complies with paragraphs (a) through (c) of this section. (a) Content, format, and appearance. The label required by paragraph S5.6.2 shall have the following content, format, and appearance:

Required Certification Information	Content/ Format	Permanent
The symbol "DOT," horizontally centered on the label, in letters not less than 0.38 inch (1.0 cm) high.	*Pass	*Pass
The term "FMVSS No. 218," horizontally centered beneath the symbol DOT, in letters not less than 0.09 inches (0.23 cm) high.	*Pass	
The word "CERTIFIED," horizontally centered beneath the term "FMVSS No. 218," in letters not less than 0.09 inches (0.23 cm) high.	*Pass	
The precise model designation horizontally centered above the symbol DOT, in letters and/or numerals not less than 0.09 inch (0.23 cm) high.	*Pass	
The manufacturer's name and/or brand, horizontally centered above the model designation, in letters and/or numerals not less than 0.09 inch (0.23 cm) high.	*Pass	
All symbols, letters and numerals shall be in a color that contrasts with the background of the label.	*Pass	
No information, other than the information specified in subparagraph (a), shall appear on the label.	*Pass	
The label shall appear on the outer surface of the helmet and be placed so that it is centered laterally with the horizontal centerline of the DOT symbol located a minimum of 1 inch (2.5 cm) and a maximum of 3 inches (7.6 cm) from the bottom edge of the posterior portion of the helmet.	*Pass	

COMMENT:

- S5.6 Labeling: *Client has supplied digital artwork for section 5.6.2. ACT has only evaluated that the required content is present, additional formatting, appearance and permanency requirements unable to be evaluated.



TEST DATA

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SharePoint/GlobalResourceLibrary/Reporting/ReportTemplates/Helmets/FMVSS No.218

Technician: Edward Wang

Test Date: 22 April 2020

Uni-Axial Calibration

Helmet Manufacturer EON

Address :

Testing Laboratory Taicang ACT Lab

Address : No.35 Zhenghe Road, Ludu Town,
Taicang City, Suzhou, Jiangsu Province,
China 215412

Laboratory Technician name Carry

M.E.P. Pad Model 1 MEP

Laboratory Temperature 22 deg C

Laboratory Humidity 57 %

Selected Filter Frequency 1000 Hz

Acc. sensitivity (axis Z) : 9.93 mV/G

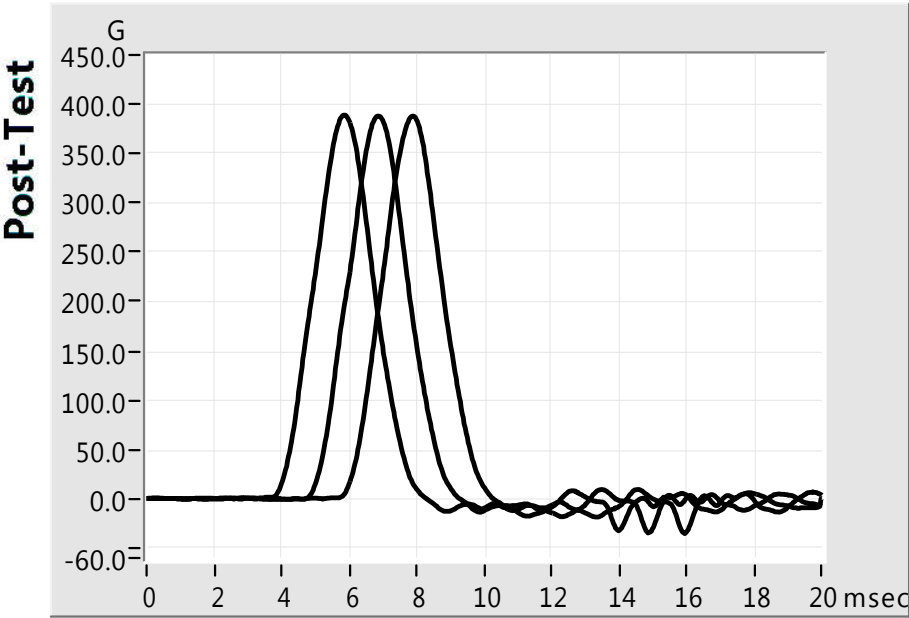
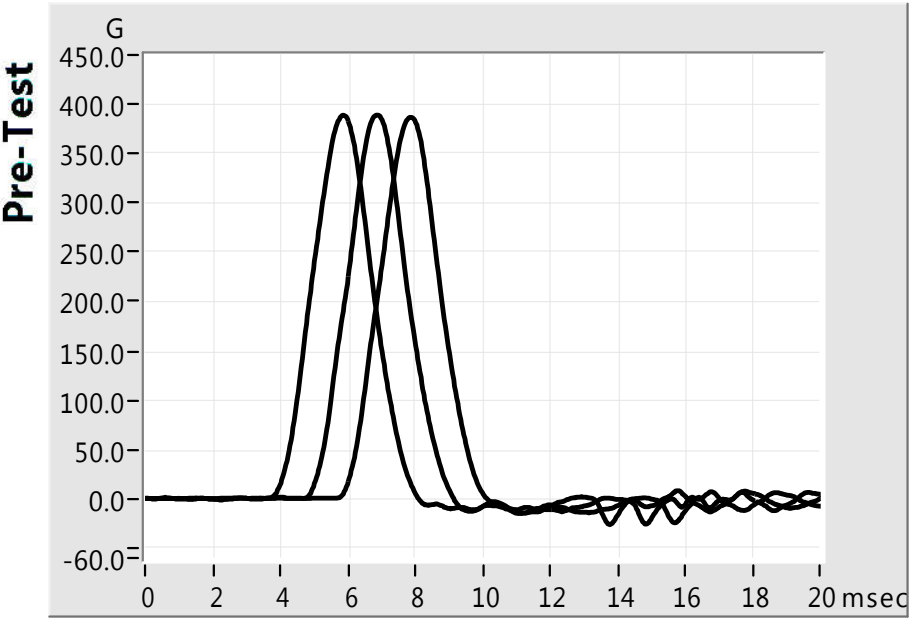
Acc. sensitivity (axis X) : 10.28 mV/G

Acc. sensitivity (axis Y) : 10.30 mV/G

Drop Device : Spherical Impactor (Uni-Axial)

Drop mass assembly : 5.000 kg Time gate flag height : 25.40 mm

Calibration peak : 400.0 G +/- 20.00 G



	Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
Pre-Test	1	388.9	4.3829	100.0	MEP	2.33	1.95	0/0	2020-04-22	09:15:18	1.0	Pass
	2	388.9	4.3753	100.0	MEP	2.35	1.91	0/0	2020-04-22	09:16:21	1.2	Pass
	3	386.4	4.4087	100.0	MEP	2.34	1.93	0/0	2020-04-22	09:17:20	0.5	Pass
Post-Test	1	388.9	4.3949	100.0	MEP	2.35	1.92	0/0	2020-04-22	11:23:36	0.8	Pass
	2	387.9	4.4036	100.0	MEP	2.36	1.94	0/0	2020-04-22	11:24:33	0.6	Pass
	3	387.9	4.3891	100.0	MEP	2.34	1.92	0/0	2020-04-22	11:25:30	0.9	Pass

Impact Uni-Axial

Testing Laboratory : Taicang ACT Lab

Address : No.35 Zhenghe Road, Ludu Town,
Taicang City, Suzhou, Jiangsu
Province, China 215412

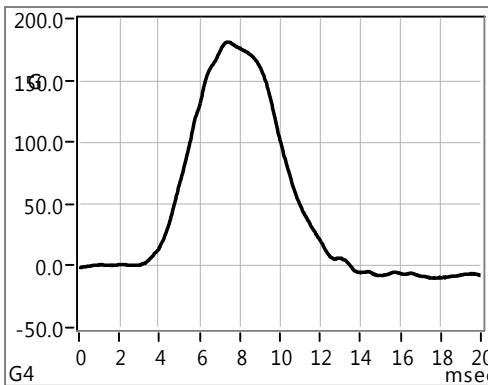
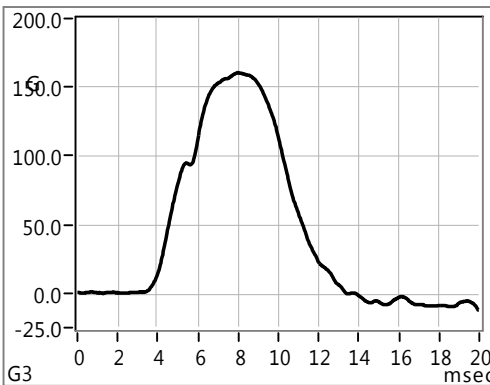
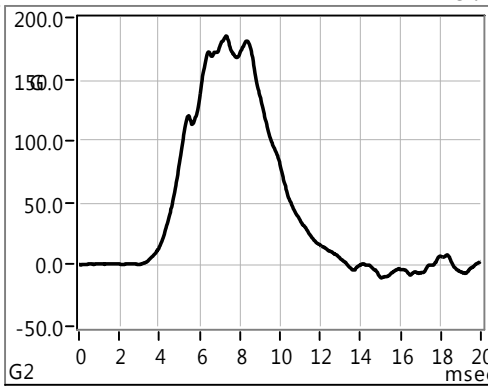
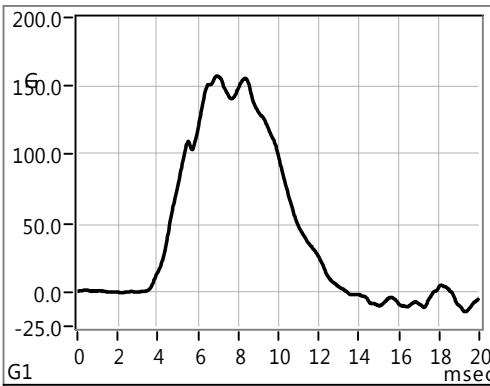
Helmet Manufacturer : EON

Address :

Laboratory Technician name : Carry

Batch Number :

Ref. P.O. Number :



Model : MOTO 9.5

Color : Carbon

Size : S(55-56cm)

Weight : 1122.00 g

Manufacturing Date : 22 Apr 2020

Standard Request : FMVSS 218

Identification Code : 904.04491.001-A

Headform Model : D.O.T.

Headform Size : C D.O.T

Conditioning : Ambient

Laboratory Temperature : 22 deg C

Laboratory Humidity : 57 %

Selected Filter Frequency : 1650 Hz

Maximum Peak G's authorized : 400 G

Maximum Peak m/s² authorized : 3923 m/s²

Drop mass assembly : 5.000 kg

Time gate flag height : 25.40 mm

Acc. sensibility (axis Z) : 9.93

Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
1	157.3	5.9790	192.0	FLAT	1.31	0.00	LF SIDE	2020-04-22	09:24:27	2.6	Pass
2	184.9	6.0286	192.0	FLAT	2.68	0.00	LF SIDE	2020-04-22	09:24:46	1.8	Pass
3	160.8	6.0079	192.0	FLAT	2.31	0.00	REAR	2020-04-22	09:37:57	2.1	Pass
4	180.9	6.0185	192.0	FLAT	2.98	0.00	REAR	2020-04-22	09:38:13	1.9	Pass

Impact Uni-Axial

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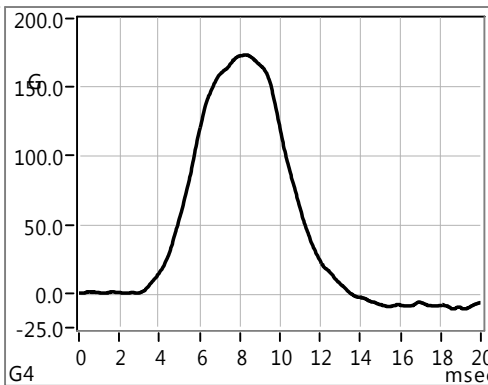
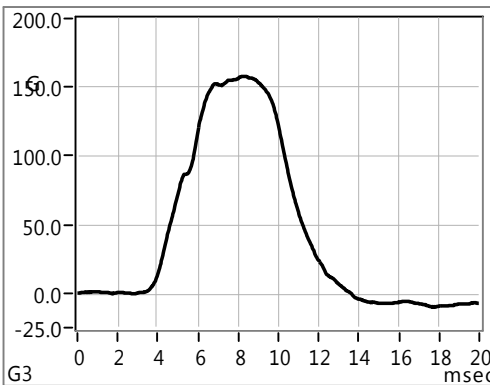
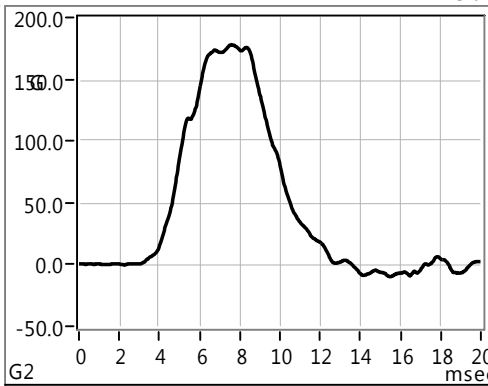
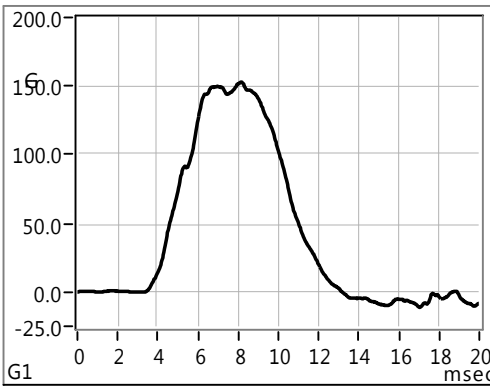
Helmet Manufacturer : EON

Address :

Laboratory Technician name : Carry

Batch Number :

Ref. P.O. Number :



Model : MOTO 9.5

Color : Carbon

Size : S(55-56cm)

Weight : 1123.00 g

Manufacturing Date : 22 Apr 2020

Standard Request : FMVSS 218

Identification Code : 904.04491.001-B

Headform Model : D.O.T.

Headform Size : C D.O.T

Conditioning : Cold

Laboratory Temperature : 22 deg C

Laboratory Humidity : 57 %

Selected Filter Frequency : 1650 Hz

Maximum Peak G's authorized : 400 G

Maximum Peak m/s² authorized : 3923 m/s²

Drop mass assembly : 5.000 kg

Time gate flag height : 25.40 mm

Acc. sensibility (axis Z) : 9.93

Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
1	152.9	6.0247	192.0	FLAT	0.39	0.00	LF SIDE	2020-04-22	09:27:27	1.8	Pass
2	178.0	6.0265	192.0	FLAT	2.72	0.00	LF SIDE	2020-04-22	09:27:44	1.8	Pass
3	157.8	6.0184	192.0	FLAT	2.54	0.00	REAR	2020-04-22	09:43:22	1.9	Pass
4	173.5	6.0046	192.0	FLAT	2.91	0.00	REAR	2020-04-22	09:43:37	2.2	Pass

Impact Uni-Axial

Testing Laboratory : Taicang ACT Lab

Address : No.35 Zhenghe Road, Ludu Town,
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Province, China 215412

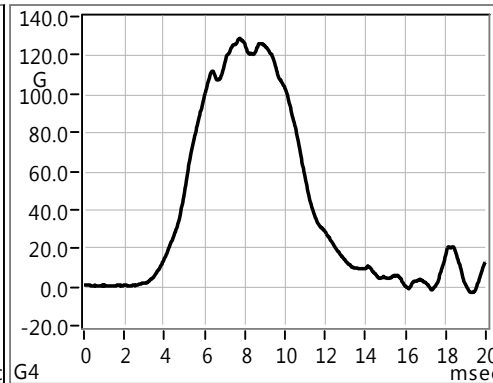
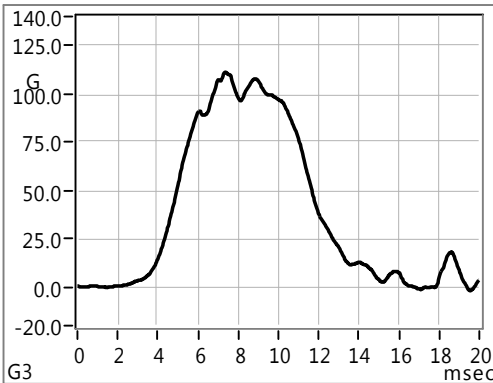
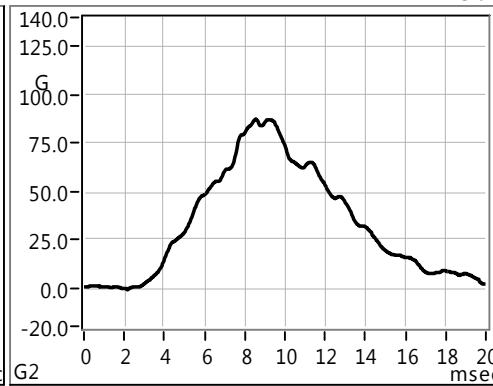
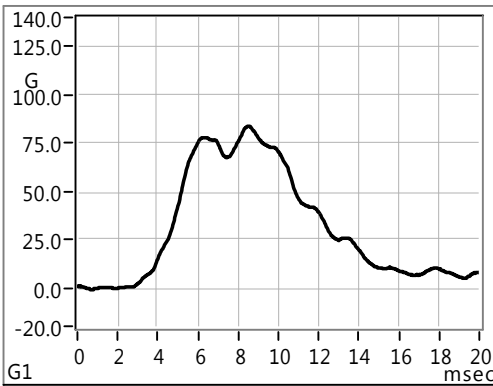
Helmet Manufacturer : EON

Address :

Laboratory Technician name : Carry

Batch Number :

Ref. P.O. Number :



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Color : Carbon

Size : S(55-56cm)

Weight : 1123.00 g

Manufacturing Date : 22 Apr 2020

Standard Request : FMVSS 218

Identification Code : 904.04491.001-B

Headform Model : D.O.T.

Headform Size : C D.O.T

Conditioning : Cold

Laboratory Temperature : 22 deg C

Laboratory Humidity : 57 %

Selected Filter Frequency : 1650 Hz

Maximum Peak G's authorized : 400 G

Maximum Peak m/s² authorized : 3923 m/s²

Drop mass assembly : 5.000 kg

Time gate flag height : 25.40 mm

Acc. sensibility (axis Z) : 9.93

Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
5	83.6	5.2130	145.0	HEMI	0.00	0.00	FRONT	2020-04-22	09:59:04	2.2	Pass
6	87.5	5.2132	145.0	HEMI	0.00	0.00	FRONT	2020-04-22	09:59:17	2.2	Pass
7	111.1	5.1763	145.0	HEMI	0.00	0.00	RT SIDE	2020-04-22	10:13:10	2.9	Pass
8	128.8	5.1815	145.0	HEMI	0.00	0.00	RT SIDE	2020-04-22	10:13:27	2.8	Pass

Impact Uni-Axial

Testing Laboratory : Taicang ACT Lab

Address : No.35 Zhenghe Road, Ludu Town,
Taicang City, Suzhou, Jiangsu
Province, China 215412

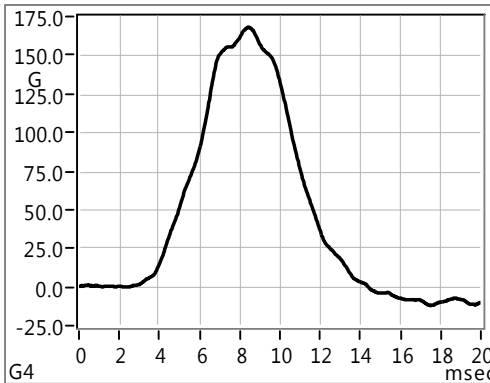
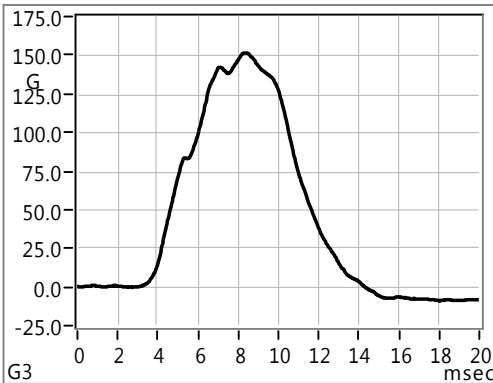
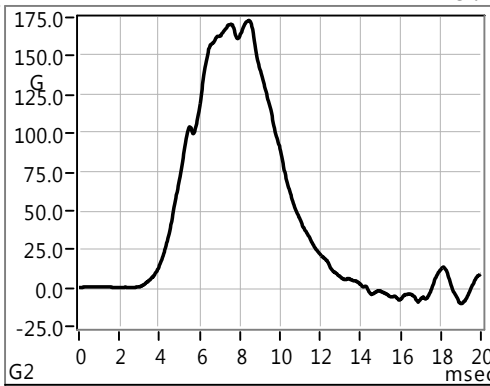
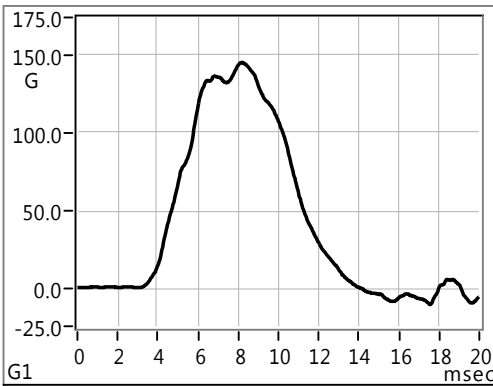
Helmet Manufacturer : EON

Address :

Laboratory Technician name : Carry

Batch Number :

Ref. P.O. Number :



Model : MOTO 9.5

Color : Carbon

Size : S(55-56cm)

Weight : 1132.00 g

Manufacturing Date : 22 Apr 2020

Standard Request : FMVSS 218

Identification Code : 904.04491.001-C

Headform Model : D.O.T.

Headform Size : C D.O.T

Conditioning : Hot

Laboratory Temperature : 22 deg C

Laboratory Humidity : 57 %

Selected Filter Frequency : 1650 Hz

Maximum Peak G's authorized : 400 G

Maximum Peak m/s² authorized : 3923 m/s²

Drop mass assembly : 5.000 kg

Time gate flag height : 25.40 mm

Acc. sensibility (axis Z) : 9.93

Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
1	146.0	6.0481	192.0	FLAT	0.00	0.00	LF SIDE	2020-04-22	09:30:19	1.4	Pass
2	173.1	6.0277	192.0	FLAT	2.45	0.00	LF SIDE	2020-04-22	09:30:34	1.8	Pass
3	151.4	6.0145	192.0	FLAT	0.42	0.00	REAR	2020-04-22	09:46:07	2.0	Pass
4	168.1	5.9918	192.0	FLAT	2.51	0.00	REAR	2020-04-22	09:46:22	2.4	Pass

Impact Uni-Axial

Testing Laboratory : Taicang ACT Lab

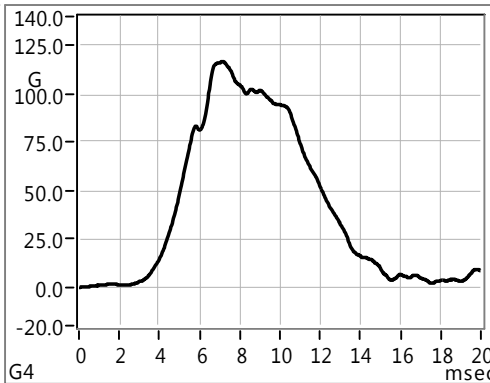
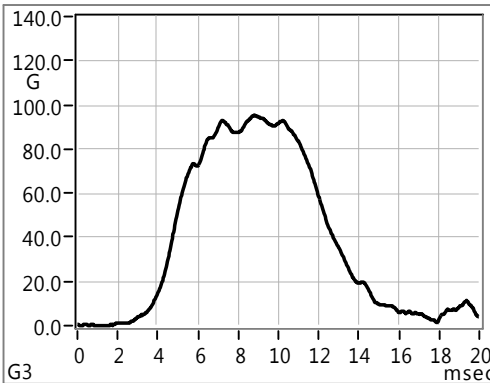
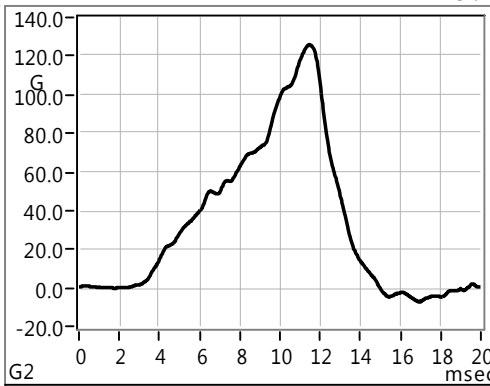
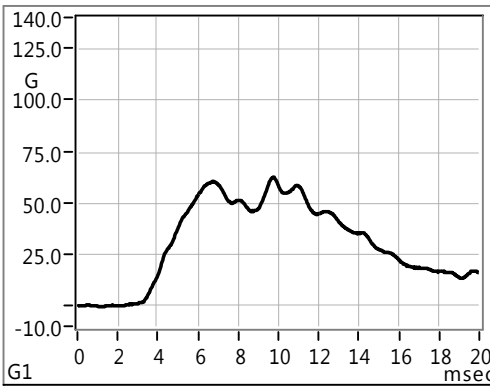
Address : No.35 Zhenghe Road, Ludu Town,
Taicang City, Suzhou, Jiangsu
Province, China 215412

Helmet Manufacturer : EON
Address :

Laboratory Technician name : Carry

Batch Number :

Ref. P.O. Number :



Model : MOTO 9.5

Color : Carbon

Size : S(55-56cm)

Weight : 1132.00 g

Manufacturing Date : 22 Apr 2020

Standard Request : FMVSS 218

Identification Code : 904.04491.001-C

Headform Model : D.O.T.

Headform Size : C D.O.T

Conditioning : Hot

Laboratory Temperature : 22 deg C

Laboratory Humidity : 57 %

Selected Filter Frequency : 1650 Hz

Maximum Peak G's authorized : 400 G

Maximum Peak m/s² authorized : 3923 m/s²

Drop mass assembly : 5.000 kg

Time gate flag height : 25.40 mm

Acc. sensibility (axis Z) : 9.93

Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
5	62.4	5.2102	145.0	HEMI	0.00	0.00	FRONT	2020-04-22	10:01:31	2.3	Pass
6	125.9	5.2259	145.0	HEMI	0.00	0.00	FRONT	2020-04-22	10:01:44	2.0	Pass
7	95.4	5.1961	145.0	HEMI	0.00	0.00	RT SIDE	2020-04-22	10:15:25	2.6	Pass
8	116.5	5.1935	145.0	HEMI	0.00	0.00	RT SIDE	2020-04-22	10:15:40	2.6	Pass

Impact Uni-Axial

Testing Laboratory : Taicang ACT Lab

Address : No.35 Zhenghe Road, Ludu Town,
Taicang City, Suzhou, Jiangsu
Province, China 215412

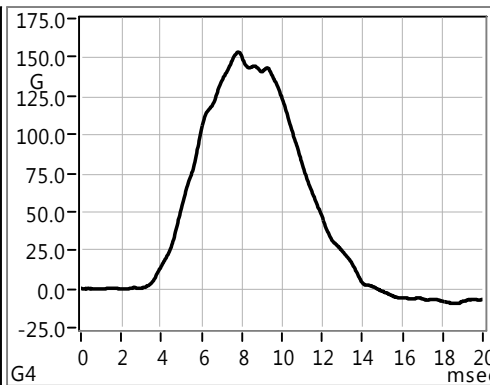
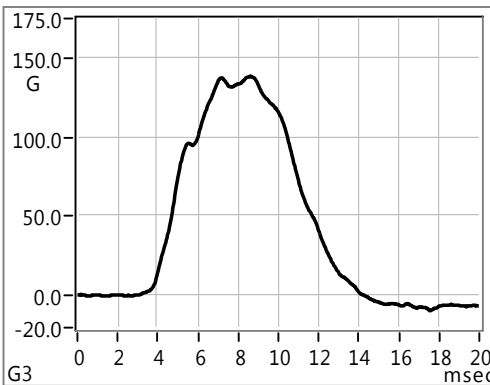
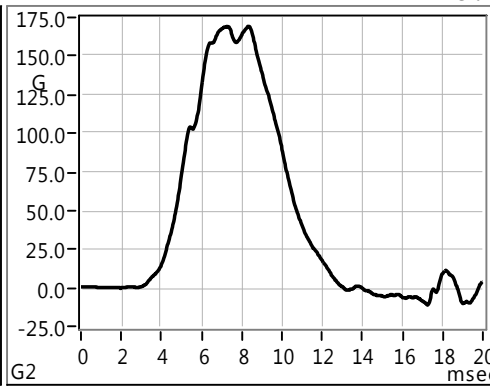
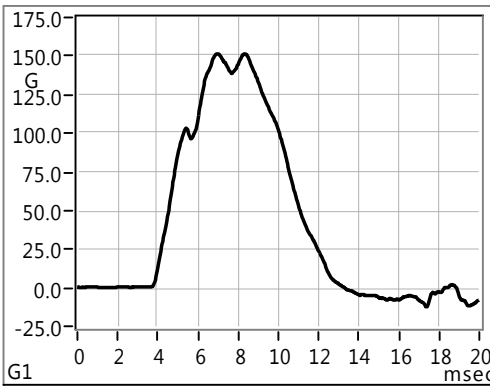
Helmet Manufacturer : EON

Address :

Laboratory Technician name : Carry

Batch Number :

Ref. P.O. Number :



Model : MOTO 9.5

Color : Carbon

Size : S(55-56cm)

Weight : 1161.00 g

Manufacturing Date : 22 Apr 2020

Standard Request : FMVSS 218

Identification Code : 904.04491.001-D

Headform Model : D.O.T.

Headform Size : C D.O.T

Conditioning : Wet

Laboratory Temperature : 22 deg C

Laboratory Humidity : 57 %

Selected Filter Frequency : 1650 Hz

Maximum Peak G's authorized : 400 G

Maximum Peak m/s² authorized : 3923 m/s²

Drop mass assembly : 5.000 kg

Time gate flag height : 25.40 mm

Acc. sensibility (axis Z) : 9.93

Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
1	151.4	6.0328	192.0	FLAT	0.56	0.00	LF SIDE	2020-04-22	09:33:25	1.7	Pass
2	169.1	6.0413	192.0	FLAT	2.55	0.00	LF SIDE	2020-04-22	09:33:42	1.6	Pass
3	138.6	6.0200	192.0	FLAT	0.00	0.00	REAR	2020-04-22	09:40:54	1.9	Pass
4	153.4	6.0212	192.0	FLAT	0.42	0.00	REAR	2020-04-22	09:41:10	1.9	Pass

Impact Uni-Axial

Testing Laboratory : Taicang ACT Lab

Address : No.35 Zhenghe Road, Ludu Town,
Taicang City, Suzhou, Jiangsu
Province, China 215412

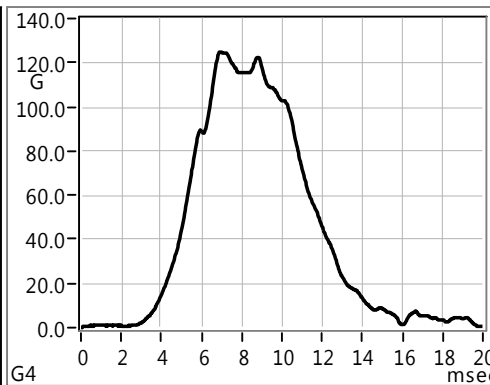
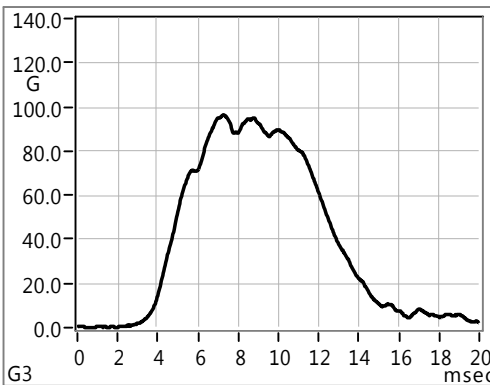
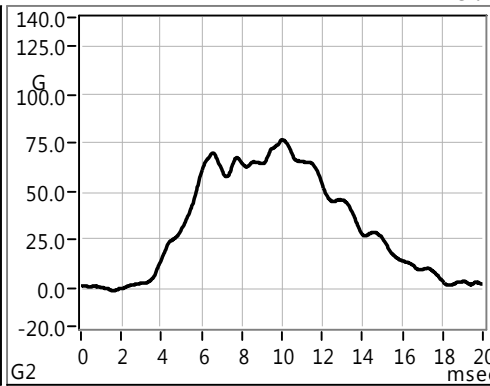
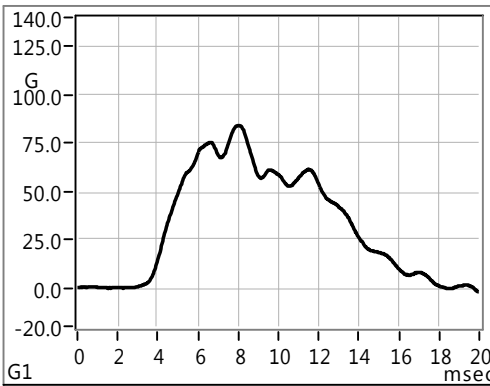
Helmet Manufacturer : EON

Address :

Laboratory Technician name : Carry

Batch Number :

Ref. P.O. Number :



Model : MOTO 9.5

Color : Carbon

Size : S(55-56cm)

Weight : 1161.00 g

Manufacturing Date : 22 Apr 2020

Standard Request : FMVSS 218

Identification Code : 904.04491.001-D

Headform Model : D.O.T.

Headform Size : C D.O.T

Conditioning : Wet

Laboratory Temperature : 22 deg C

Laboratory Humidity : 57 %

Selected Filter Frequency : 1650 Hz

Maximum Peak G's authorized : 400 G

Maximum Peak m/s² authorized : 3923 m/s²

Drop mass assembly : 5.000 kg

Time gate flag height : 25.40 mm

Acc. sensibility (axis Z) : 9.93

Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
5	84.1	5.2174	145.0	HEMI	0.00	0.00	FRONT	2020-04-22	09:56:54	2.2	Pass
6	76.7	5.2123	145.0	HEMI	0.00	0.00	FRONT	2020-04-22	09:57:08	2.3	Pass
7	96.4	5.2074	145.0	HEMI	0.00	0.00	RT SIDE	2020-04-22	10:10:40	2.4	Pass
8	124.9	5.1895	145.0	HEMI	0.00	0.00	RT SIDE	2020-04-22	10:10:57	2.7	Pass

DOT Auto – Test results

Laboratory

Laboratory ACT Lab
 Technician Carry
 Temperature 22
 Humidity 57%

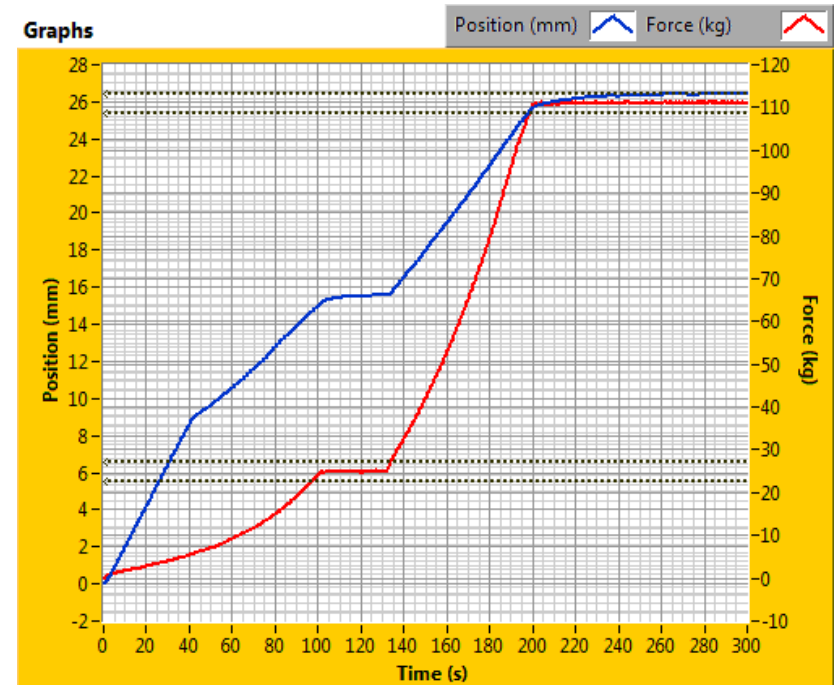
Sample

Model MOTO 9.5
 Color Carbon
 Size S
 Weight 1122
 Manufacturer EON
 Manuf. Date 01/20

Infos

Standard FMVSS No.218
 Comment 904.04491.001-A

Graphs



Results

Test	Time Data D/M/Y h:ms	DL ?	Status	Tar1 (Kg)	Tar1 (S)	Tar2 (Kg)	Tar2 (S)	Delta(Del.1 to Del.2) (mm)	Pass/Fail		
Test#14	[01/01/01 00:00:00]	NO	Valid	22.7	30.0	113.3	120.0	10.7	Pass		

DOT Auto – Test results

Laboratory

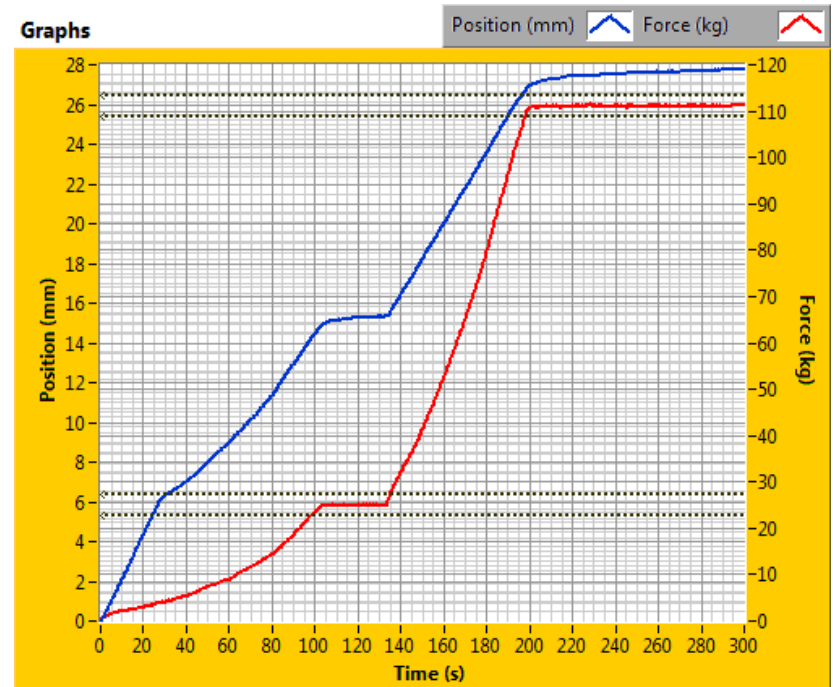
Laboratory ACT Lab
 Technician Carry
 Temperature 22
 Humidity 57%

Sample

Model MOTO 9.5
 Color Carbon
 Size S
 Weight 1123
 Manufacturer EON
 Manuf. Date 01/20

Infos

Standard FMVSS No.218
 Comment 904.04491.001-B



Results

Test	Time Data D/M/Y h:ms	DL ?	Status	Tar1 (Kg)	Tar1 (S)	Tar2 (Kg)	Tar2 (S)	Delta(Del1 to Del2) (mm)	Pass/Fail			
Test#15	[01/01/01 00:00:00]	NO	Valid	22.7	30.0	113.3	120.0	12.3	Pass			

DOT Auto – Test results

Laboratory

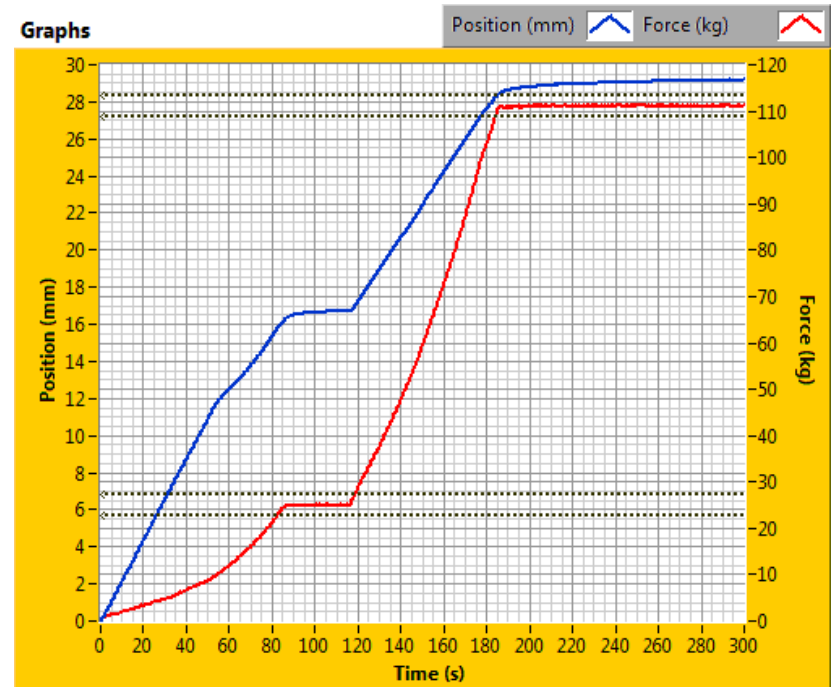
Laboratory ACT Lab
 Technician Carry
 Temperature 22
 Humidity 57%

Sample

Model MOTO 9.5
 Color Carbon
 Size S
 Weight 1132
 Manufacturer EON
 Manuf. Date 01/20

Infos

Standard FMVSS No.218
 Comment 904.04491.001-C



Results

Test	Time Data D/M/Y h:ms	DL ?	Status	Tar1 (Kg)	Tar1 (S)	Tar2 (Kg)	Tar2 (S)	Delta(Del1 to Del2) (mm)	Pass/Fail			
Test#16	[01/01/01 00:00:00]	NO	Valid	22.7	30.0	113.3	120.0	12.3	Pass			

DOT Auto – Test results

Laboratory

Laboratory ACT Lab
 Technician Carry
 Temperature 22
 Humidity 57%

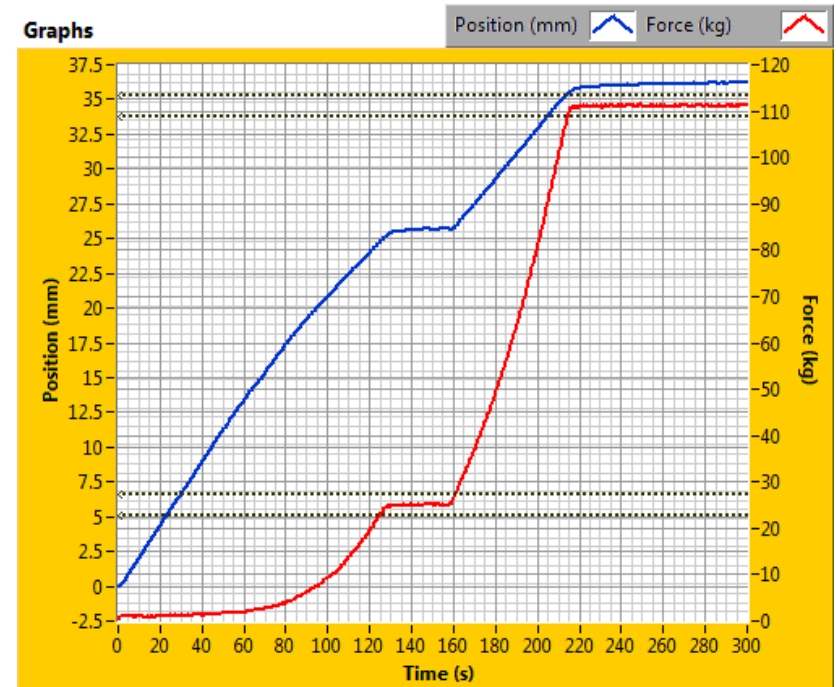
Sample

Model MOTO 9.5
 Color Carbon
 Size S
 Weight 1161
 Manufacturer EON
 Manuf. Date 01/20

Infos

Standard FMVSS No.218
 Comment 904.04491.001-D

Graphs



Results

Test	Time Data D/M/Y h:ms	DL ?	Status	Tar1 (Kg)	Tar1 (S)	Tar2 (Kg)	Tar2 (S)	Delta(Del1 to Del2) (mm)	Pass/Fail			
Test#17	[01/01/01 00:00:00]	NO	Valid	22.7	30.0	113.3	120.0	10.5	Pass			

APPENDIX A

INTERPRETATIONS OR DEVIATIONS FROM FMVSS 218

1. S5.6 Labeling: *Client has supplied digital artwork for section 5.6.2. ACT has only evaluated that the required content is present, additional formatting, appearance and permanency requirements unable to be evaluated.
2. Excess water on the water immersed sample was allowed to drip off before testing to prevent water damage to test equipment.



APPENDIX B

EQUIPMENT LIST AND CALIBRATION SCHEDULES

EQUIPMENT INFORMATION

General Information

Drop System: Monorail
Software: Cadex Impact Software v 6.4f

Item	Model	S/N
Computer	VD200PA#AB2	CNG9211DB1
Data Acquisition Board	187570H-01	13EC16A
Time Gate	Cadex	HVTG12009033-1
Control Box	PC4300	CCS120090331-1

Headforms

Item	Size	Model	Assembly Wt., grams
Uni-Axial	Headform Size DOT SMALL	Cadex	3573
Uni-Axial	Headform Size DOT MEDIUM	Cadex	5060
Uni-Axial	Headform Size DOT LARGE	Cadex	6185

Sensors

Item		Model	S/N
Uni-Axial	Accelerometer	PCB 353B18	86079

Contract File No.: 904.04491

Test File: 001

Control Document: Official ACT/FMVSS No.218/Report Template TP-07 CN 19 November 2019 Rev.9
SharePoint/GlobalResourceLibrary/Reporting/ReportTemplates/Helmets/FMVSS No.218

Technician: Edward Wang

Test Date: 22 April 2020

**EQUIPMENT LIST AND CALIBRATION SCHEDULES**

Testing Equipment					
<u>Item No.</u>	<u>Description</u>	<u>Manufacture</u>	<u>Model</u>	<u>S/N</u>	<u>Date</u>
H1002	Monorail	Cadex	Series 2000	None	N/A
H1001	Monorail/Tri-Axial	Cadex	1000_00_MIMAT	None	N/A
H1015	Positional Stability Fixture	Protec	N/A	None	N/A
H1017	Dynamic Strap Machine	Cadex	SB033	None	N/A
H1049	DOT Headform	Cadex	Small	3570	16 Sep 2019
H1050	DOT Headform	Cadex	Medium	5057	16 Sep 2019
H1051	DOT Headform	Cadex	Large	6182	16 Sep 2019
H1053	System Check MEP Pad	Cadex	345_08_MP60	30051201	N/A
H1060	Anvil	Cadex	Hemispherical	None	16 Sep 2019
H1062	Anvil	Cadex	Flat	None	16 Sep 2019
H1030	High Temp Cabinet	Shanghai Boxun	92*9240MBE	8285	25 Jun 2019
H1031	High Temp Cabinet	/	DHG-9426	1503338018	24 Oct 2019
H1032	Low Temp Cabinet	Haier	DW-25W300	BE062100NO OB29578VMO	25 Jun 2019
H1033	Low Temp Cabinet	Haier	DW-50W225	F8LMJ	24 Oct 2019
H1034	Water Conditioning Container	Rubbermaid	None	None	N/A
H1026	Laser Test Line Table	Cadex	SB005	TLTV2KB	N/A
---	Computer	DELL	Optiplex 5040	3K51LF2	N/A
H1010	Control Center System	Cadex	Pc4300	CCS120090331-1	N/A
H1011	Impact Machine Control System	Cadex	DX3000	None	N/A
H1064	Control Center System	Cadex	CCS-PC 4400	CCS120120810-1	N/A
H1027	Peripheral Vision Apparatus	Hongtu	H-002	0.7°	26 Oct 2018

Contract File No.: 904.04491

Test File: 001

Control Document: Official ACT/FMVSS No.218/Report Template TP-07 CN 19 November 2019 Rev.9

SharePoint/GlobalResourceLibrary/Reporting/ReportTemplates/Helmets/FMVSS No.218

Technician: Edward Wang

Test Date: 22 April 2020

**EQUIPMENT LIST AND CALIBRATION SCHEDULES**

Calibrated Measurement Equipment						
Item No.	Description	Manufacture and Model	Serial No.	Accuracy	Calibration	
					Last	Next
H1003	Velocity Gate	Cadex	HVTG120120810-1	0.16msec	02 Oct 2019	01 Oct 2020
H1004	Velocity Gate	Cadex	HVTG120090331-1	0.16msec	23 Jan 2020	22 Jan 2021
H1006	Accelerometer	PCB - 353B18	131607	9.932 mV/g	04 Oct 2019	03 Oct 2020
H1007	Accelerometer	PCB - 353B18	86079	10.30 mV/g	04 Oct 2019	03 Oct 2020
H1014	LVDT	Volfa - LWE-200	2002572	0.01	24 Oct 2019	23 Oct 2020
H1012	LVDT Amplifier	Schaevitz - C20101007753	J72863	-	24 Oct 2019	23 Oct 2020
H1036	Environmental Monitoring	Anymeter TH-602F	3238	2%	25 Jun 2019	24 Jun 2020
H1025	Scale	Shanghai Yousheng BT-6	12230126	0.2g	25 Jun 2019	24 Jun 2020
H1008	Digital Tape	Starrett	5027526-B	0.1mm	26 Jun 2019	25 Jun 2020
H1009	Digital Tape	Starrett	5027526	0.1 mm	25 Oct 2019	24 Oct 2020
H1073	Height Gauge	Guanglu	03000002	0.01 mm	29 Sep 2019	28 Sep 2020

Contract File No.: 904.04491

Test File: 001

Control Document: Official ACT/FMVSS No.218/Report Template TP-07 CN 19 November 2019 Rev.9

SharePoint/GlobalResourceLibrary/Reporting/ReportTemplates/Helmets/FMVSS No.218

Technician: Edward Wang

Test Date: 22 April 2020



APPENDIX C

PHOTOGRAPHS

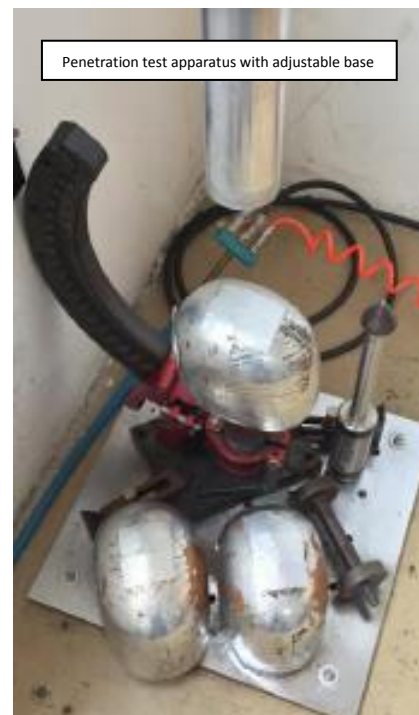
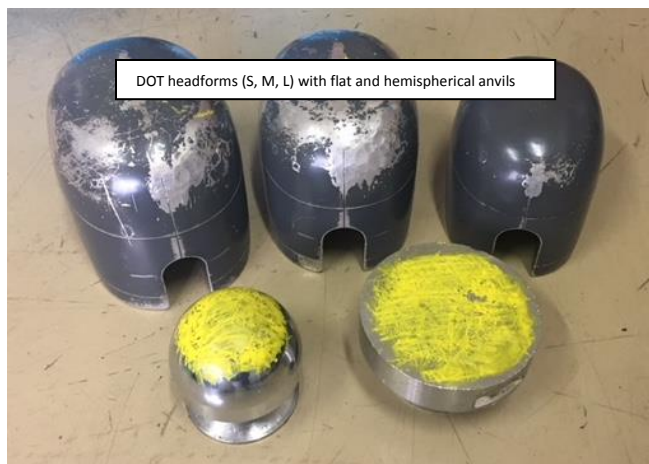
Contract File No.: 904.04491

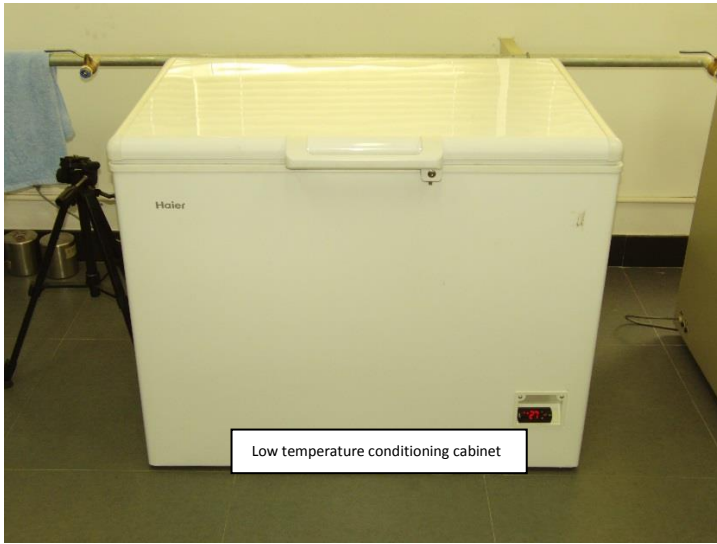
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Control Document: Official ACT/FMVSS No.218/Report Template TP-07 CN 19 November 2019 Rev.9
SharePoint/GlobalResourceLibrary/Reporting/ReportTemplates/Helmets/FMVSS No.218

Technician: Edward Wang

Test Date: 22 April 2020





Low temperature conditioning cabinet



Water immersion equipment



High temperature chamber











LEATT
MOTO 9.5
DOT
FMVSS NO 218
CERTIFIED

S
55-56cm
1195g±50g
ECE 22.05