

SAFETY COMPLIANCE TESTING FOR FMVSS No. 218 MOTORCYCLE HELMETS

Brand: BELL, HARLEY-DAVIDSON, HUSQVARNA
Model: FF321, P442, ELIMINATOR, HD-B16
Tested Size: L (59-60 cm)

Prepared For:

Jiangmen Pengcheng Helmets Ltd. (MHR)
No.01-7 Dongsheng Road, Gonghe Town
Heshan, Jiangmen City,
Guangdong, China, 529728



09 February 2018

Final Report No.: 527.0122.001

Tested By:

Taicang ACT Sporting Goods Testing Co., Ltd.
No. 35 Zhenghe Road,
Ludu Town, Taicang City, Suzhou,
Jiangsu Province, China 215412
www.act-lab.com

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Contract File No.: 527.0122

Test File: 001

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Technician: Edward Wong
Test Date: 09 February 2018

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PURPOSE OF COMPLIANCE TEST

Purpose:

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

Jiangmen Pengcheng Helmets Ltd. (MHR)

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: BELL, HARLEY-DAVIDSON, HUSQVARNA

HELMET MODEL DESIGNATION: FF321, P442, ELIMINATOR, HD-B16

HELMET MANUFACTURER: Jiangmen Pengcheng Helmets Ltd. (MHR)

HELMET SIZE: L (59-60 cm)

HELMET COVERAGE: Partial - _____; Full - _____; Complete Facial - X

HELMET POSITIONING INDEX: 65 mm

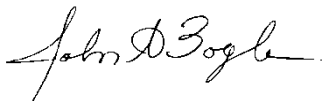
SHELL MATERIAL: Composite Material and Polyester Resin

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	Black	Black	Black	Black	Black
Weight (grams)	1156	1178	1171	1183	1328
Month & Year of Manufacture	02/18	02/18	02/18	02/18	02/18

Reviewed by: John Bogler



COMMENTS:

- ☒ All helmets were received in undamaged condition and were appropriate for testing.
- ☒ Weights listed above for helmets A-D are as tested with all attachments removed.
- ☒ Weight for helmet E is complete with all components in place.
- ☒ Manufacture provided the HPI information prior to testing.

SUMMARY OF TEST RESULTS

INDICATE - Pass or - Fail

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

TEST	PASS	FAIL
PERIPHERAL VISION	Pass	
PROJECTIONS	Pass	
LABELING	Pass	

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: L (59-60 cm).
Discrete Size: 59-60 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 conditioning 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 %

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
527.0122.001-A	Ambient	1	LF SIDE	FLAT	195.0	6.0203	1.96	0.00	170.2	Pass
527.0122.001-A	Ambient	2	LF SIDE	FLAT	195.0	6.0377	2.70	0.00	192.3	Pass
527.0122.001-A	Ambient	3	REAR	FLAT	195.0	6.0532	1.36	0.00	169.2	Pass
527.0122.001-A	Ambient	4	REAR	FLAT	195.0	6.0277	2.64	0.00	198.2	Pass
527.0122.001-A	Ambient	5	FRONT	HEMI	145.0	5.2348	0.00	0.00	82.6	Pass
527.0122.001-A	Ambient	6	FRONT	HEMI	145.0	5.2284	0.00	0.00	100.8	Pass
527.0122.001-A	Ambient	7	RT SIDE	HEMI	145.0	5.2697	0.00	0.00	85.1	Pass
527.0122.001-A	Ambient	8	RT SIDE	HEMI	145.0	5.2518	0.00	0.00	89.5	Pass
527.0122.001-B	Cold	1	LF SIDE	FLAT	195.0	6.0324	1.70	0.00	168.2	Pass
527.0122.001-B	Cold	2	LF SIDE	FLAT	195.0	6.0083	2.77	0.63	202.6	Pass
527.0122.001-B	Cold	3	REAR	FLAT	195.0	6.0270	2.06	0.00	175.6	Pass
527.0122.001-B	Cold	4	REAR	FLAT	195.0	6.0850	2.75	0.77	210.0	Pass
527.0122.001-B	Cold	5	FRONT	HEMI	145.0	5.2519	0.00	0.00	90.5	Pass
527.0122.001-B	Cold	6	FRONT	HEMI	145.0	5.1979	0.00	0.00	110.2	Pass
527.0122.001-B	Cold	7	RT SIDE	HEMI	145.0	5.2457	0.00	0.00	98.9	Pass
527.0122.001-B	Cold	8	RT SIDE	HEMI	145.0	5.2677	0.00	0.00	105.2	Pass
527.0122.001-C	Hot	1	LF SIDE	FLAT	195.0	6.0388	0.24	0.00	151.0	Pass
527.0122.001-C	Hot	2	LF SIDE	FLAT	195.0	6.0179	2.85	0.00	182.0	Pass
527.0122.001-C	Hot	3	REAR	FLAT	195.0	6.0689	0.71	0.00	161.3	Pass
527.0122.001-C	Hot	4	REAR	FLAT	195.0	6.0692	2.28	0.00	193.3	Pass
527.0122.001-C	Hot	5	FRONT	HEMI	145.0	5.1974	0.00	0.00	77.7	Pass
527.0122.001-C	Hot	6	FRONT	HEMI	145.0	5.2413	0.00	0.00	92.5	Pass
527.0122.001-C	Hot	7	RT SIDE	HEMI	145.0	5.2535	0.00	0.00	96.9	Pass
527.0122.001-C	Hot	8	RT SIDE	HEMI	145.0	5.2523	0.00	0.00	99.8	Pass
527.0122.001-D	Wet	1	LF SIDE	FLAT	195.0	6.0478	0.00	0.00	145.1	Pass
527.0122.001-D	Wet	2	LF SIDE	FLAT	195.0	6.0275	2.51	0.00	164.3	Pass
527.0122.001-D	Wet	3	REAR	FLAT	195.0	6.0679	0.00	0.00	147.5	Pass
527.0122.001-D	Wet	4	REAR	FLAT	195.0	6.0632	2.34	0.00	171.2	Pass
527.0122.001-D	Wet	5	FRONT	HEMI	145.0	5.2349	0.00	0.00	82.6	Pass
527.0122.001-D	Wet	6	FRONT	HEMI	145.0	5.2202	0.00	0.00	81.6	Pass
527.0122.001-D	Wet	7	RT SIDE	HEMI	145.0	5.2765	0.00	0.00	96.9	Pass
527.0122.001-D	Wet	8	RT SIDE	HEMI	145.0	5.2391	0.00	0.00	86.1	Pass

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Technician: Edward Wong

Test Date: 09 February 2018

PENETRATION

Paragraph S5.2 and S7.2

WEIGHT OF STRIKER: 6 pounds 10 ± 2 ounces (2.95 ± 0.05 kg)

POINT OF STRIKER: Tip angle of $60 \pm 0.5^\circ$, Cone height of 1.5 ± 0.015 in. (3.8 ± 0.038 cm), Tip radius of 0.02 ± 0.004 inch (0.5 ± 0.1 mm), and a minimum hardness of 60 Rockwell, C-scale.

HEIGHT OF FALL: 118.1 ± 0.6 in (3 ± 0.015 m), as measured from striker point to the impact point on the outer surface of the test helmet.

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

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

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	1.3
B	LOW TEMPERATURE	1.2
C	HIGH TEMPERATURE	1.2
D	WATER IMMERSED	1.2

PERIPHERAL VISION

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

	REQUIREMENTS	RESULTS
DEGREE EACH SIDE M.S. PLANE	> 105°	Pass
BROW OPENING	> 2.54 cm	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	Rivet	0.9 mm

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	Pass/Fail	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	Pass/Fail	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:

- ☒ Labels were determined to be both easily read and permanent based on the TP-218-07, Section 12.5.4.
- ☒ *Client has supplied digital artwork for section 5.6. labeling and has confirmed that all formatting, appearance and permanency requirements shall be met.

TEST DATA

Contract File No.: 527.0122

Test File: 001

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Technician: Edward Wong

Test Date: 09 February 2018

Uni-Axial Calibration

Helmet Manufacturer : MHR

Address :

Testing Laboratory : Taicang ACT Lab

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

Laboratory Technician name : Edward

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) : 10.32 mV/G

Acc. sensitivity (axis Y) : 10.32 mV/G

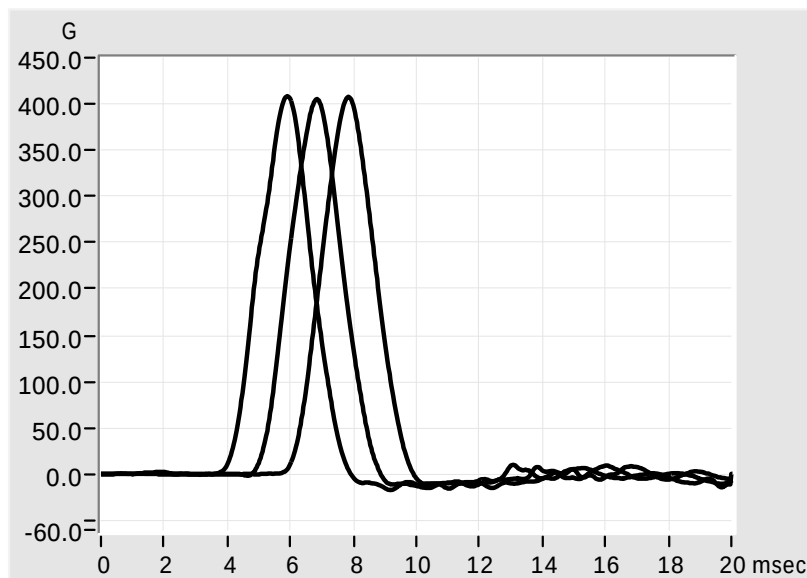
Drop Device : Spherical Impactor (Uni-Axial)

Drop mass assembly : 5.000 kg

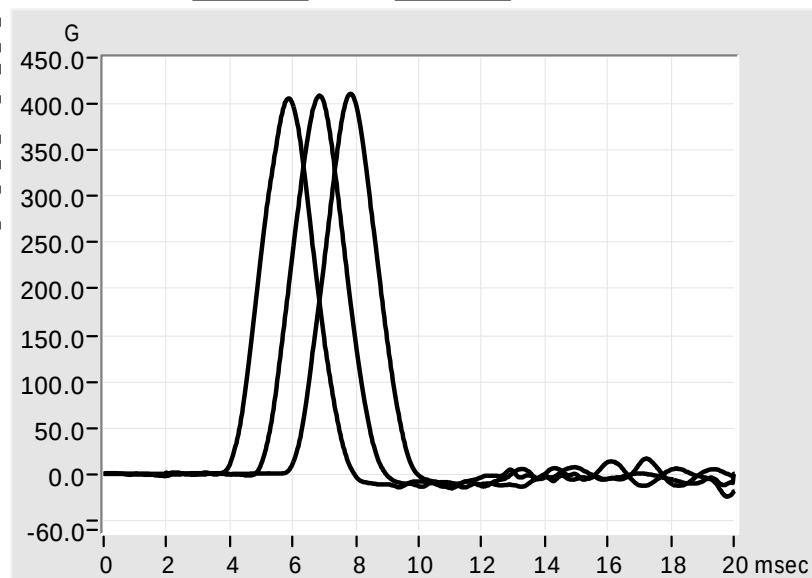
Time gate flag height : 25.40 mm

Calibration peak : 400.0 G +/- 25.00 G

Pre-Test



Post-Test



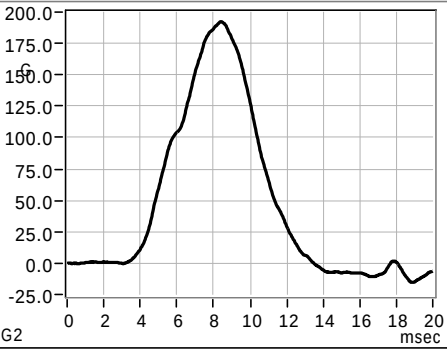
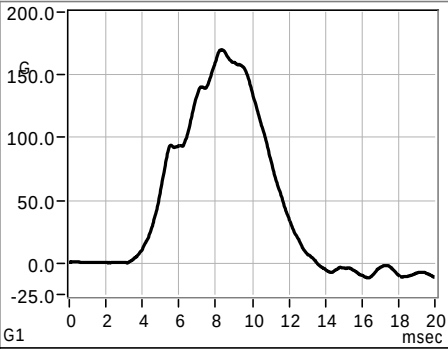
	Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
Pre-Test	1	408.2	4.3212	100.0	2.28	1.93	0/0	2018-02-07	10:26:01	2.4	Pass
	2	404.8	4.3766	100.0	2.27	1.91	0/0	2018-02-07	10:27:14	1.2	Pass
	3	407.2	4.3746	100.0	2.26	1.90	0/0	2018-02-07	10:28:23	1.2	Pass
Post-Test	1	405.8	4.3414	100.0	2.28	1.92	0/0	2018-02-07	11:32:46	2.0	Pass
	2	408.7	4.3812	100.0	2.28	1.92	0/0	2018-02-07	11:33:54	1.1	Pass
	3	410.7	4.4004	100.0	2.28	1.90	0/0	2018-02-07	11:34:54	0.6	Pass

Impact Uni-Axial

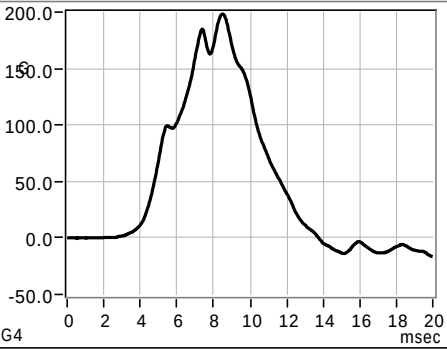
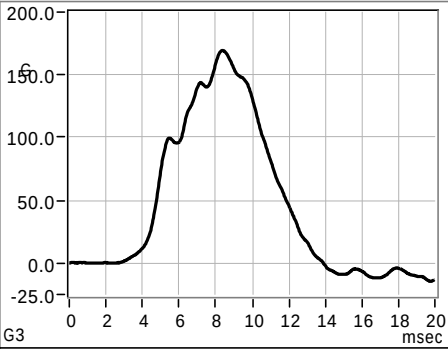
Helmet Manufacturer : MHR
Address :

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

Laboratory Technician name : Edward
Batch Number :
Ref. P.O. Number :



Model : ELIMINATOR
Color : Black
Size : L
Weight : 1156.00 g
Manufacturing Date : 07 Feb 2018
Standard Request : FMVSS218
Identification Code : 527.0122.001-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



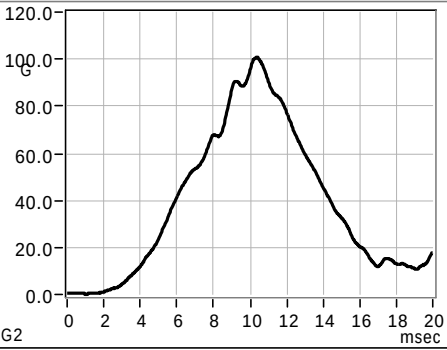
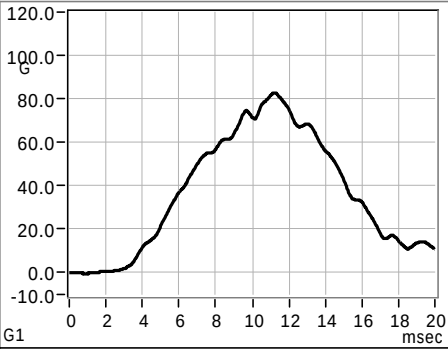
Impact #	Peak Acc. (G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
1	170.2	6.0203	195.0	FLAT	1.96	0.00	LF SIDE	2018-02-07	11:14:07	2.7	Pass
2	192.3	6.0377	195.0	FLAT	2.70	0.00	LF SIDE	2018-02-07	11:14:18	2.4	Pass
3	169.2	6.0532	195.0	FLAT	1.36	0.00	REAR	2018-02-07	11:18:57	2.1	Pass
4	198.2	6.0277	195.0	FLAT	2.64	0.00	REAR	2018-02-07	11:19:10	2.5	Pass

Impact Uni-Axial

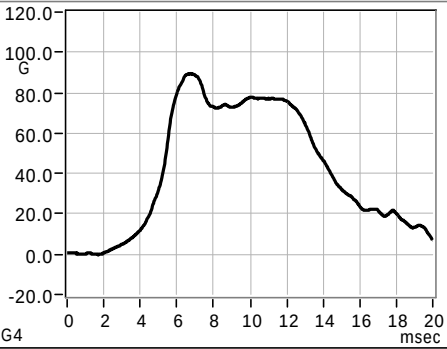
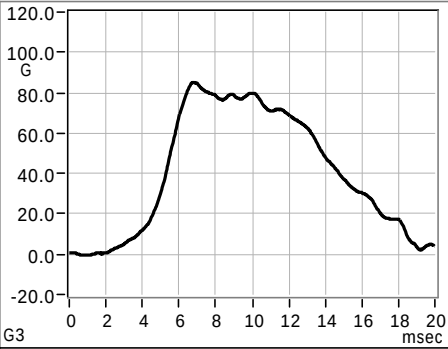
Helmet Manufacturer : MHR
Address :

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

Laboratory Technician name : Edward
Batch Number :
Ref. P.O. Number :



Model : ELIMINATOR
Color : Black
Size : L
Weight : 1156.00 g
Manufacturing Date : 07 Feb 2018
Standard Request : FMVSS218
Identification Code : 527.0122.001-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



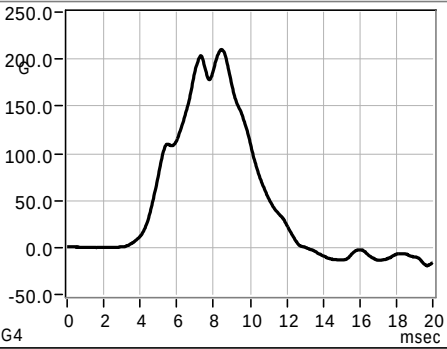
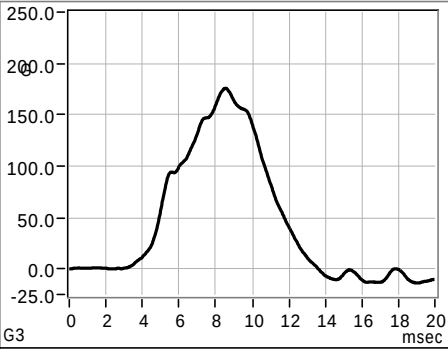
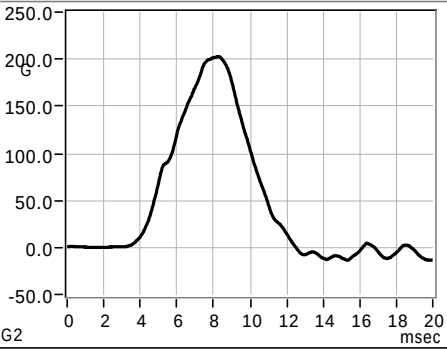
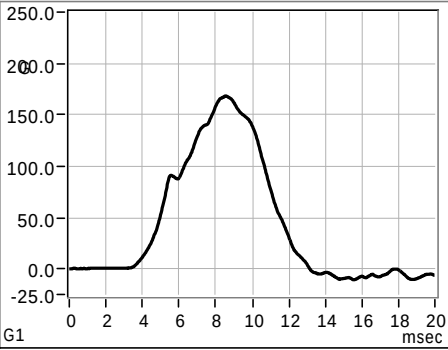
Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
5	82.6	5.2348	145.0	HEMI	0.00	0.00	FRONT	2018-02-07	11:23:54	1.8	Pass
6	100.8	5.2284	145.0	HEMI	0.00	0.00	FRONT	2018-02-07	11:24:03	2.0	Pass
7	85.1	5.2697	145.0	HEMI	0.00	0.00	RT SIDE	2018-02-07	11:30:34	1.2	Pass
8	89.5	5.2518	145.0	HEMI	0.00	0.00	RT SIDE	2018-02-07	11:30:42	1.5	Pass

Impact Uni-Axial

Helmet Manufacturer : MHR
Address :

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

Laboratory Technician name : Edward
Batch Number :
Ref. P.O. Number :



Model : ELIMINATOR
Color : Black
Size : L
Weight : 1178.00 g
Manufacturing Date : 07 Feb 2018
Standard Request : FMVSS218
Identification Code : 527.0122.001-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

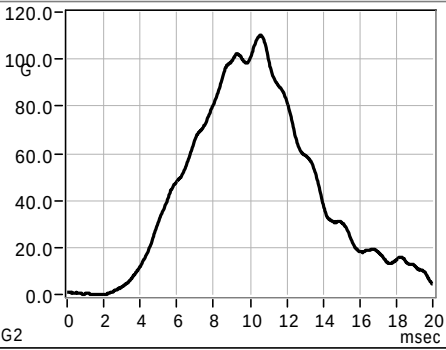
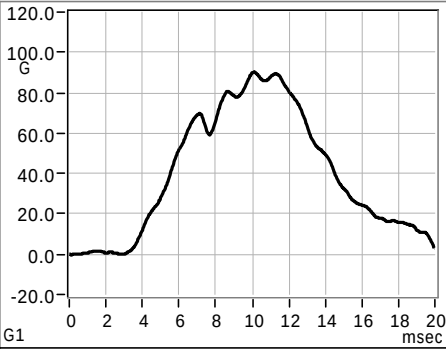
Impact #	Peak Acc. (G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
1	168.2	6.0324	195.0	FLAT	1.70	0.00	LF SIDE	2018-02-07	11:15:04	2.5	Pass
2	202.6	6.0083	195.0	FLAT	2.77	0.63	LF SIDE	2018-02-07	11:15:14	2.8	Pass
3	175.6	6.0270	195.0	FLAT	2.06	0.00	REAR	2018-02-07	11:20:37	2.5	Pass
4	210.0	6.0850	195.0	FLAT	2.75	0.77	REAR	2018-02-07	11:20:46	1.6	Pass

Impact Uni-Axial

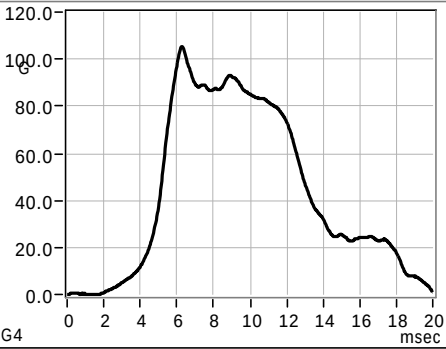
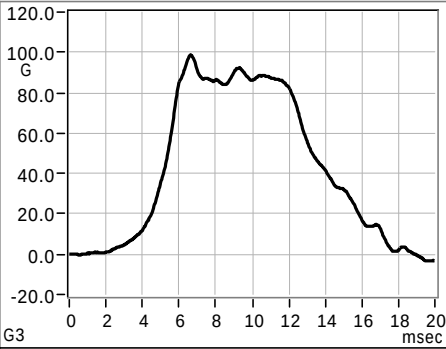
Helmet Manufacturer : MHR
Address :

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

Laboratory Technician name : Edward
Batch Number :
Ref. P.O. Number :



Model : ELIMINATOR
Color : Black
Size : L
Weight : 1178.00 g
Manufacturing Date : 07 Feb 2018
Standard Request : FMVSS218
Identification Code : 527.0122.001-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



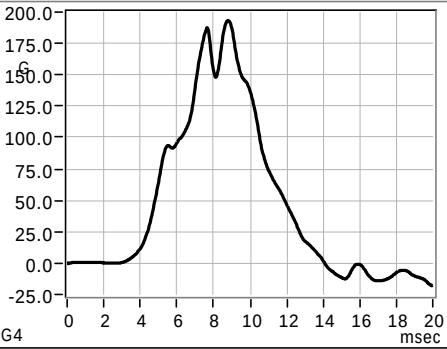
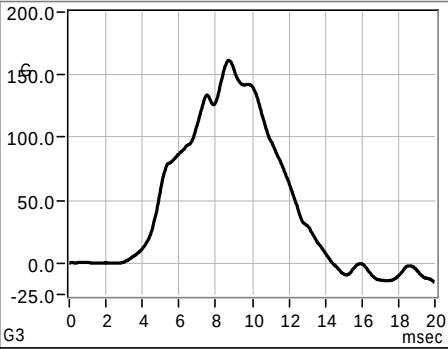
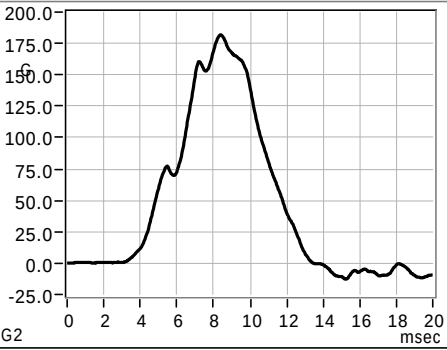
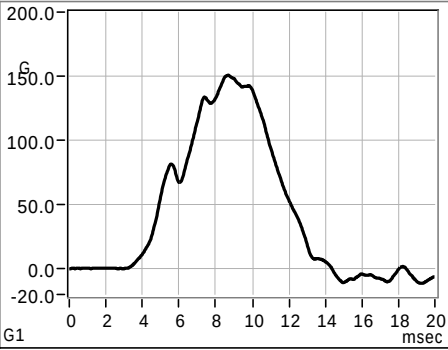
Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
5	90.5	5.2519	145.0	HEMI	0.00	0.00	FRONT	2018-02-07	11:25:25	1.5	Pass
6	110.2	5.1979	145.0	HEMI	0.00	0.00	FRONT	2018-02-07	11:25:34	2.5	Pass
7	98.9	5.2457	145.0	HEMI	0.00	0.00	RT SIDE	2018-02-07	11:29:49	1.6	Pass
8	105.2	5.2677	145.0	HEMI	0.00	0.00	RT SIDE	2018-02-07	11:29:57	1.2	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 : MHR
Address :

Laboratory Technician name : Edward
Batch Number :
Ref. P.O. Number :



Model : ELIMINATOR
Color : Black
Size : L
Weight : 1171.00 g
Manufacturing Date : 07 Feb 2018
Standard Request : FMVSS218
Identification Code : 527.0122.001-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

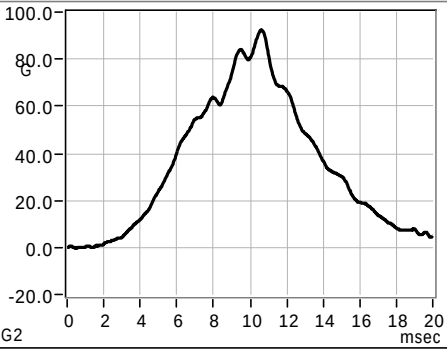
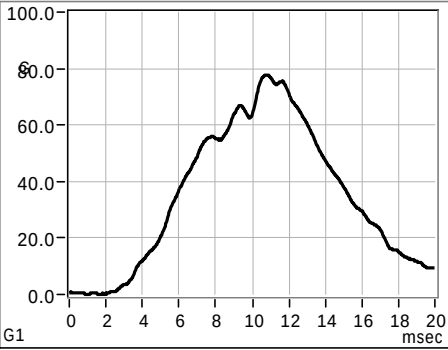
Impact #	Peak Acc. (G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
1	151.0	6.0388	195.0	FLAT	0.24	0.00	LF SIDE	2018-02-07	11:15:56	2.4	Pass
2	182.0	6.0179	195.0	FLAT	2.85	0.00	LF SIDE	2018-02-07	11:16:09	2.7	Pass
3	161.3	6.0689	195.0	FLAT	0.71	0.00	REAR	2018-02-07	11:21:27	1.9	Pass
4	193.3	6.0692	195.0	FLAT	2.28	0.00	REAR	2018-02-07	11:21:36	1.9	Pass

Impact Uni-Axial

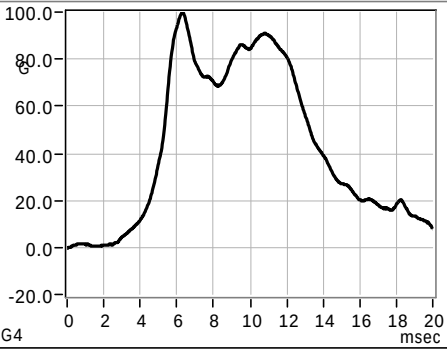
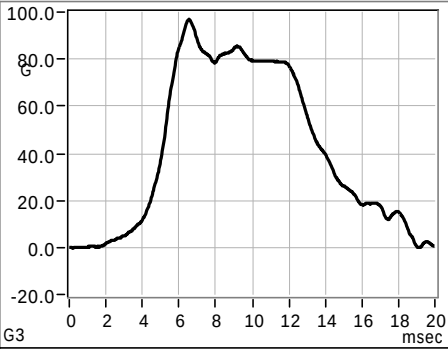
Helmet Manufacturer : MHR
Address :

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

Laboratory Technician name : Edward
Batch Number :
Ref. P.O. Number :



Model : ELIMINATOR
Color : Black
Size : L
Weight : 1171.00 g
Manufacturing Date : 07 Feb 2018
Standard Request : FMVSS218
Identification Code : 527.0122.001-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



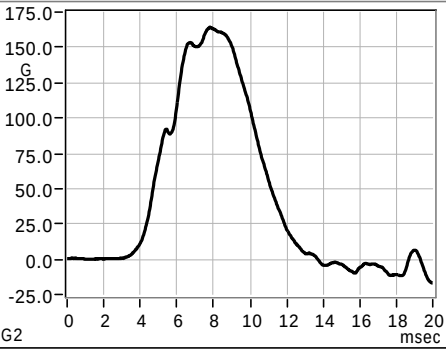
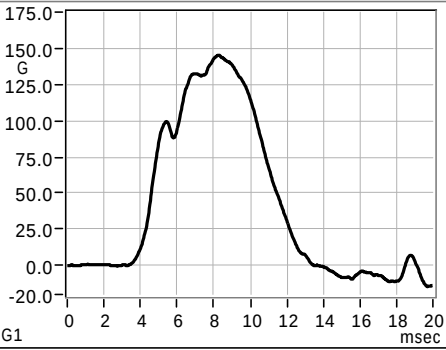
Impact #	Peak Acc.(G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
5	77.7	5.1974	145.0	HEMI	0.00	0.00	FRONT	2018-02-07	11:26:07	2.5	Pass
6	92.5	5.2413	145.0	HEMI	0.00	0.00	FRONT	2018-02-07	11:26:18	1.7	Pass
7	96.9	5.2535	145.0	HEMI	0.00	0.00	RT SIDE	2018-02-07	11:28:04	1.5	Pass
8	99.8	5.2523	145.0	HEMI	0.00	0.00	RT SIDE	2018-02-07	11:28:25	1.5	Pass

Impact Uni-Axial

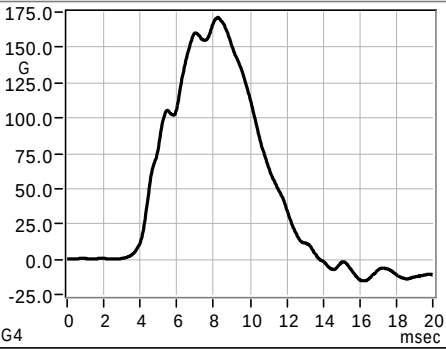
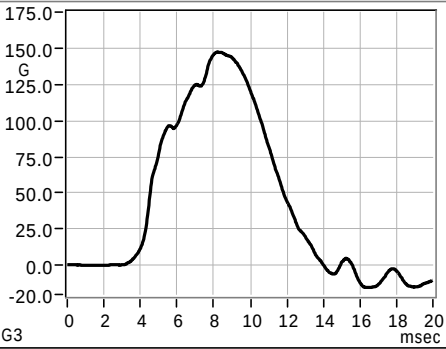
Helmet Manufacturer : MHR
Address :

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

Laboratory Technician name : Edward
Batch Number :
Ref. P.O. Number :



Model : ELIMINATOR
Color : Black
Size : L
Weight : 1183.00 g
Manufacturing Date : 07 Feb 2018
Standard Request : FMVSS218
Identification Code : 527.0122.001-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



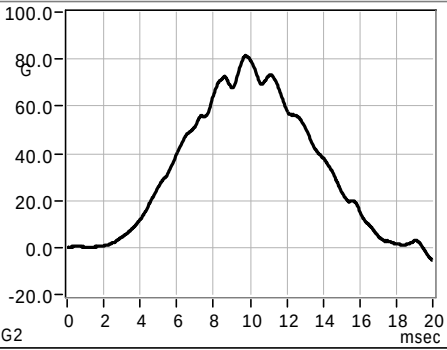
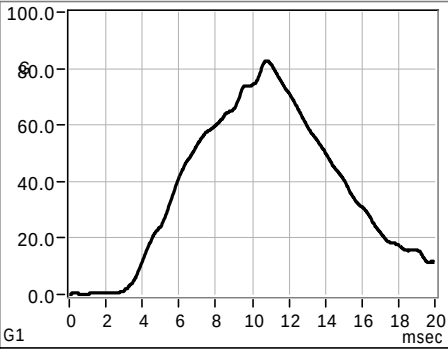
Impact #	Peak Acc. (G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
1	145.1	6.0478	195.0	FLAT	0.00	0.00	LF SIDE	2018-02-07	11:17:02	2.2	Pass
2	164.3	6.0275	195.0	FLAT	2.51	0.00	LF SIDE	2018-02-07	11:17:12	2.5	Pass
3	147.5	6.0679	195.0	FLAT	0.00	0.00	REAR	2018-02-07	11:19:42	1.9	Pass
4	171.2	6.0632	195.0	FLAT	2.34	0.00	REAR	2018-02-07	11:19:51	2.0	Pass

Impact Uni-Axial

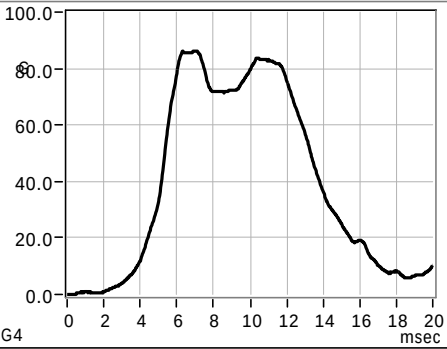
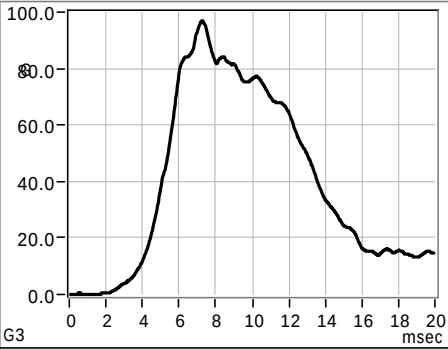
Helmet Manufacturer : MHR
Address :

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

Laboratory Technician name : Edward
Batch Number :
Ref. P.O. Number :



Model : ELIMINATOR
Color : Black
Size : L
Weight : 1183.00 g
Manufacturing Date : 07 Feb 2018
Standard Request : FMVSS218
Identification Code : 527.0122.001-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	82.6	5.2349	145.0	HEMI	0.00	0.00	FRONT	2018-02-07	11:24:38	1.8	Pass
6	81.6	5.2202	145.0	HEMI	0.00	0.00	FRONT	2018-02-07	11:24:46	2.1	Pass
7	96.9	5.2765	145.0	HEMI	0.00	0.00	RT SIDE	2018-02-07	11:29:00	1.1	Pass
8	86.1	5.2391	145.0	HEMI	0.00	0.00	RT SIDE	2018-02-07	11:29:09	1.8	Pass

DOT Auto – Test results

Laboratory

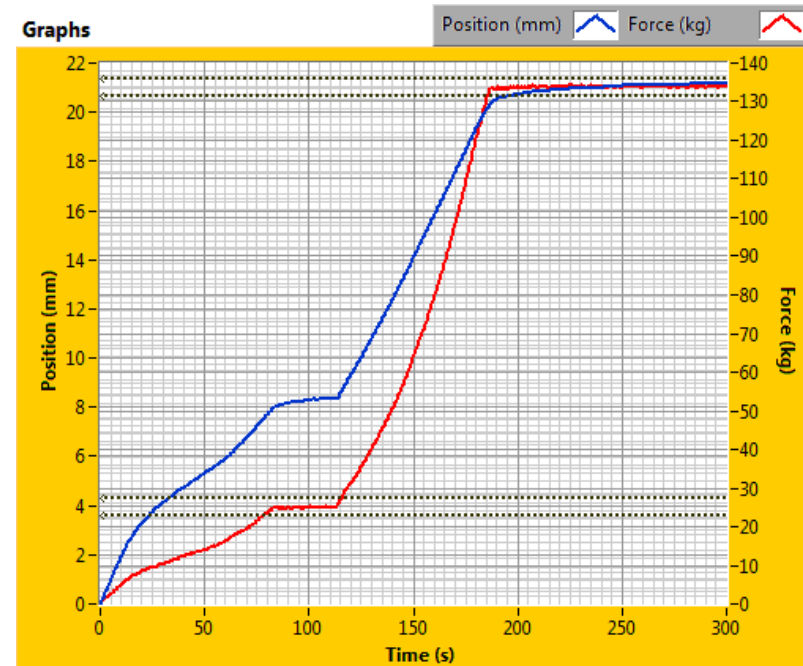
Laboratory ACT Lab
 Technician Carry
 Temperature 22°C
 Humidity 57%

Sample

Model ELIMINATOR
 Color Black
 Size L
 Weight 1156
 Manufacturer MHR
 Manuf. Date 02/18

Infos

Standard FMVSS No.218
 Comment 527.0122.001-A



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#63	[07/02/18 16:09:33]	NO	Valid	22.7	30.0	136.0	120.0	12.7	Pass			

DOT Auto – Test results

Laboratory

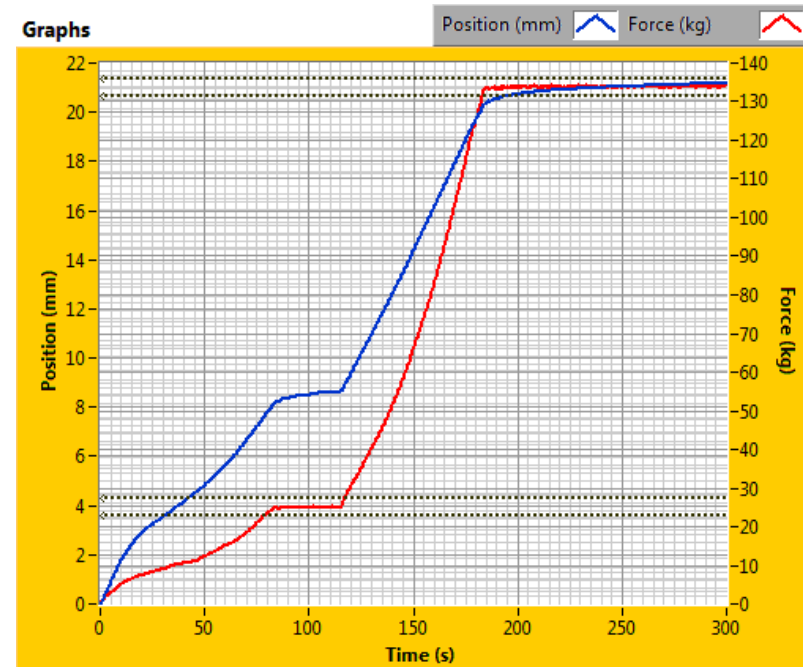
Laboratory ACT Lab
 Technician Carry
 Temperature 22°C
 Humidity 57%

Sample

Model ELIMINATOR
 Color Black
 Size L
 Weight 1178
 Manufacturer MHR
 Manuf. Date 02/18

Infos

Standard FMVSS No.218
 Comment 527.0122.001-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#0	[07/02/18 16:17:27]	NO	Valid	22.7	30.0	136.0	120.0	12.4	Pass			

DOT Auto – Test results

Laboratory

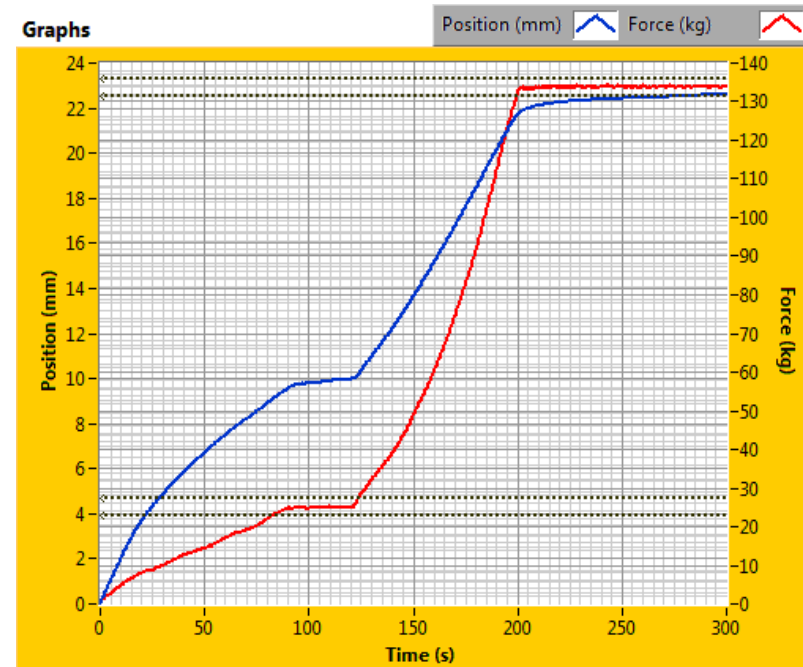
Laboratory ACT Lab
 Technician Carry
 Temperature 22°C
 Humidity 57%

Sample

Model ELIMINATOR
 Color Black
 Size L
 Weight 1171
 Manufacturer MHR
 Manuf. Date 02/18

Infos

Standard FMVSS No.218
 Comment 527.0122.001-C



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#1	[07/02/18 16:24:49]	NO	Valid	22.7	30.0	136.0	120.0	12.4	Pass			

DOT Auto – Test results

Laboratory

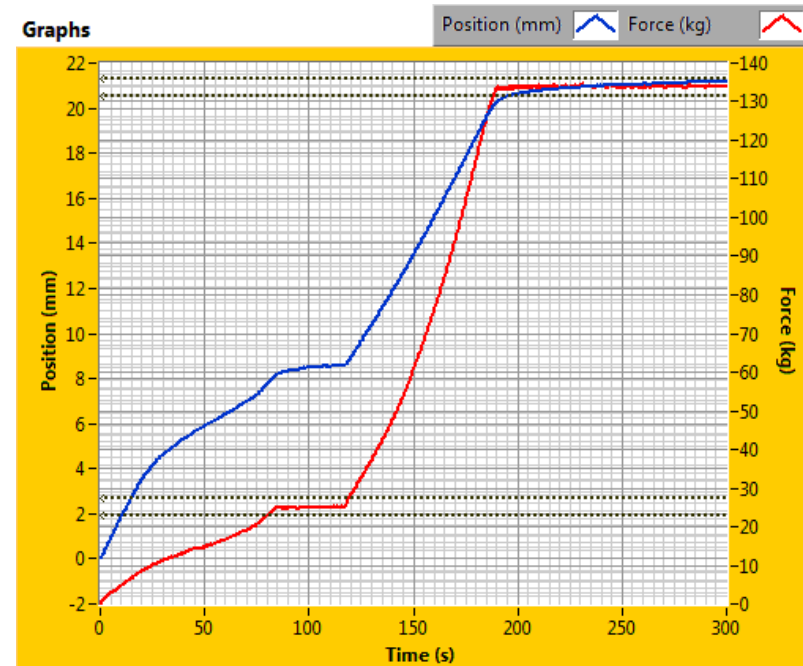
Laboratory ACT Lab
 Technician Carry
 Temperature 22°C
 Humidity 57%

Sample

Model ELIMINATOR
 Color Black
 Size L
 Weight 1183
 Manufacturer MHR
 Manuf. Date 02/18

Infos

Standard FMVSS No.218
 Comment 527.0122.001-D



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#2	[07/02/18 16:32:33]	NO	Valid	22.7	30.0	136.0	120.0	12.3	Pass			

APPENDIX A

INTERPRETATIONS OR DEVIATIONS FROM FMVSS 218

None

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

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>Dimensional Check</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	11 Sep 2017
H1049	DOT Headform	Cadex	Small	3570	11 Sep 2017
H1050	DOT Headform	Cadex	Medium	5057	11 Sep 2017
H1051	DOT Headform	Cadex	Large	6182	11 Sep 2017
H1053	System Check MEP Pad	Cadex	345_08_MP60	30051201	N/A
H1060	Anvil	Cadex	Hemispherical	None	11 Sep 2017
H1062	Anvil	Cadex	Flat	None	11 Sep 2017
H1030	High Temp Cabinet	Shanghai Boxun	92*9240MBE	8285	N/A
H1031	High Temp Cabinet	/	DHG-9426	1503338018	N/A
H1032	Low Temp Cabinet	Haier	DW-25W300	BE062100NO OB29578VMO	N/A
H1033	Low Temp Cabinet	Haier	DW-50W225	F8LMJ	N/A
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°	28 Oct 2017
---	Velocity Gate Flag	Cadex	None	1.00mm	11 Sep 2017

Contract File No.: 527.0122

Test File: 001

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Technician: Edward Wong

Test Date: 09 February 2018

Calibrated Measurement Equipment

Item No.	Description	Manufacture and Model	Serial No.	Accuracy	Calibration	
					Last	Next
H1003	Velocity Gate	Cadex	HVTG120120810-1	0.16msec	06 Nov 2017	06 Nov 2018
H1004	Velocity Gate	Cadex	HVTG120090331-1	0.16msec	31 May 2017	30 May 2018
H1006	Accelerometer	PCB - 353B18	131607	9.928 mV/g	04 Oct 2017	03 Oct 2018
H1007	Accelerometer	PCB - 353B18	86079	10.30 mV/g	04 Oct 2017	03 Oct 2018
H1014	LVDT	Volfa - LWE-200	2002572	0.01	27 Oct 2017	26 Oct 2018
H1012	LVDT Amplifier	Schaevitz - C20101007753	J72863	-	27 Oct 2017	26 Oct 2018
H1036	Environmental Monitoring	Anymeter TH-602F	3238	2%	04 Jul 2017	03 Jul 2018
H1025	Scale	Shanghai Yousheng BT-6	12230126	0.2g	15 Jun 2017	14 Jun 2018
H1008	Digital Tape	Starrett	5027526-B	0.1mm	15 Jun 2017	14 Jun 2018
H1009	Digital Tape	Starrett	5027526	0.1 mm	27 Oct 2017	26 Oct 2018
H1029	Height Gauge	Shanghai LR MC 130	9090053	0.01 mm	11 Sep 2017	10 Sep 2018

Contract File No.: 527.0122

Test File: 001

Control Document Rev.6 CN Official ACT DOT TP-07 Report Template 3 JAN 2018

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Technician: Edward Wong

Test Date: 09 February 2018

APPENDIX C

PHOTOGRAPHS

Contract File No.: 527.0122

Test File: 001

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Technician: Edward Wong

Test Date: 09 February 2018



Monorail Apparatus



Retention System
Strength Test Apparatus



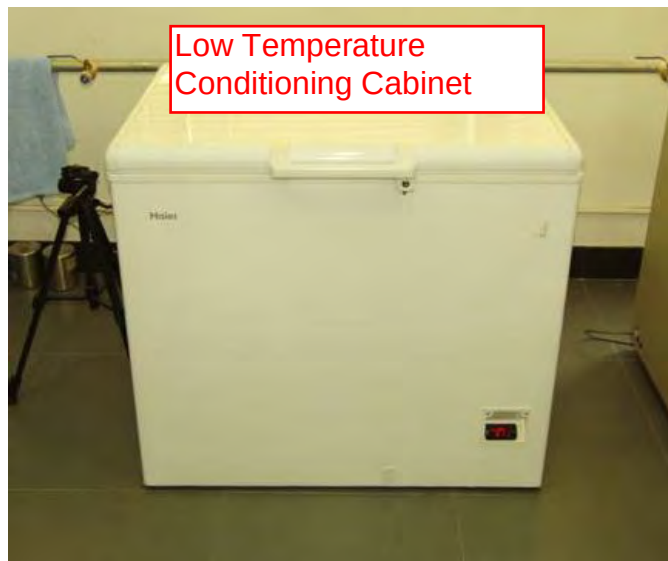
Penetration test apparatus
with adjustable base



Data Acquisition



High Temperature Chamber



Low Temperature
Conditioning Cabinet



Water Immersion
Equipment





