

# SAFETY COMPLIANCE TESTING FOR FMVSS No. 218 MOTORCYCLE HELMETS

**Brand: BELL**

**Model: BULLITT CARBON**

**Tested Size: L (58-59 cm)**

To also include size M (57-58 cm) with same shell and EPS liner size

Prepared For:

**Xiamen Yeu Chuan Composite Technology Co., Ltd.**

No. 60, Xingnan Road, Xinglin,  
Jimei, Xiamen, China



**05 September 2014**

**Final Report No.: 542.0015.003**

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**

This document shall not be reproduced except in full without written approval from ACT Lab LLC.



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated January 2009.) The Joint Communiqué is available on publications and resources page of the ILAC website at <http://www.ilac.org>. Accreditation listing and certificate can be found at <http://www.iasonline.org>.

Contract File No.: 542.0015

Test File: 003

T:\Templates\DOT Helmet Templates\Official DOT Report Template for ACT Taicang 17 July 2013.dot  
Control Document Rev. 17 July 2013

Technician: Kidman Yu

Test Date: 05 September 2014

## TABLE OF CONTENTS

<b>Section I</b>	<b>Purpose of Compliance Test</b>
<b>Section II</b>	<b>Compliance Test Data Summary</b>
<b>Section III</b>	<b>Test Data</b>
<b>Appendix A</b>	<b>Interpretations or Deviations from FMVSS 218</b>
<b>Appendix B</b>	<b>Test Equipment and Calibration</b>
<b>Appendix C</b>	<b>Photographs</b>

## **PURPOSE OF COMPLIANCE TEST**

### **Purpose:**

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

**Xiamen Yeu Chuan Composite Technology 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 Cadex Helmet Testing Manual 2.3.**

### HELMET DATA

Helmet Brand Name	BELL						
Model Designation	BULLITT CARBON						
Manufacturer	YC						
Helmet Size Label	L (58-59 cm)						
Test Headform size	Small		Medium	X	Large		
Helmet Positioning Index (HPI)	54 mm		Manufacturer supplied	X	ACT determined		
Helmet Coverage	Partial		Full	Complete	X	Modular	
Shell Material	Composite Fibers						
Liner Material	Expanded polystyrene						
Comfort Padding	Resilient Foam						
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)	1068	1060	1068	1068	1258
Month & Year of Manufacture	09/14	09/14	09/14	09/14	09/14

Other Standard Label(s) Present?	None	X	Yes, list	
----------------------------------	------	---	-----------	--

Reviewed by: John Bogler 

**COMMENTS:**

1. This BULLITT CARBON L helmet met all FMVSS 218 requirements.
2. All helmets were received in undamaged condition and were appropriate for testing.
3. Weights listed above for helmets A-D are as tested with face shield removed.
4. Weight for helmet E is complete with all components in place.

## SUMMARY OF TEST RESULTS

INDICATE P - Pass or F - Fail

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

TEST	PASS	FAIL
PERIPHERAL VISION	P	
PROJECTIONS	P	
LABELING	P	

## 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

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.

Ambient Temperature	Ambient Humidity:
22°C	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
542.0015.003-A	Ambient	1	LF SIDE	FLAT	199.0	5.9524	1.84	0.00	166.0	Pass
542.0015.003-A	Ambient	2	LF SIDE	FLAT	199.0	5.9936	3.27	0.61	202.2	Pass
542.0015.003-A	Ambient	3	REAR	FLAT	199.0	5.9729	0.00	0.00	144.7	Pass
542.0015.003-A	Ambient	4	REAR	FLAT	199.0	5.9747	2.70	0.00	176.6	Pass
542.0015.003-A	Ambient	5	FRONT	HEMI	149.0	5.1585	0.00	0.00	81.5	Pass
542.0015.003-A	Ambient	6	FRONT	HEMI	149.0	5.2269	0.00	0.00	104.2	Pass
542.0015.003-A	Ambient	7	RT SIDE	HEMI	149.0	5.2161	0.00	0.00	84.0	Pass
542.0015.003-A	Ambient	8	RT SIDE	HEMI	149.0	5.2195	0.00	0.00	111.0	Pass
542.0015.003-B	Cold	1	LF SIDE	FLAT	199.0	6.0115	1.77	0.00	163.6	Pass
542.0015.003-B	Cold	2	LF SIDE	FLAT	199.0	6.0097	2.18	0.00	181.9	Pass
542.0015.003-B	Cold	3	REAR	FLAT	199.0	5.9704	0.00	0.00	144.7	Pass
542.0015.003-B	Cold	4	REAR	FLAT	199.0	5.9822	0.66	0.00	159.7	Pass
542.0015.003-B	Cold	5	FRONT	HEMI	149.0	5.2150	0.00	0.00	77.7	Pass
542.0015.003-B	Cold	6	FRONT	HEMI	149.0	5.2319	0.00	0.00	121.6	Pass
542.0015.003-B	Cold	7	RT SIDE	HEMI	149.0	5.2150	0.00	0.00	78.6	Pass
542.0015.003-B	Cold	8	RT SIDE	HEMI	149.0	5.2119	0.00	0.00	102.3	Pass
542.0015.003-C	Hot	1	LF SIDE	FLAT	199.0	6.0130	2.25	0.00	166.5	Pass
542.0015.003-C	Hot	2	LF SIDE	FLAT	199.0	6.0012	2.99	0.27	200.7	Pass
542.0015.003-C	Hot	3	REAR	FLAT	199.0	5.9775	0.00	0.00	123.0	Pass
542.0015.003-C	Hot	4	REAR	FLAT	199.0	5.9768	2.57	0.00	171.8	Pass
542.0015.003-C	Hot	5	FRONT	HEMI	149.0	5.2067	0.00	0.00	78.2	Pass
542.0015.003-C	Hot	6	FRONT	HEMI	149.0	5.2048	0.00	0.00	104.7	Pass
542.0015.003-C	Hot	7	RT SIDE	HEMI	149.0	5.2138	0.00	0.00	80.1	Pass
542.0015.003-C	Hot	8	RT SIDE	HEMI	149.0	5.2165	0.00	0.00	109.0	Pass
542.0015.003-D	Wet	1	LF SIDE	FLAT	199.0	6.0178	0.00	0.00	137.0	Pass
542.0015.003-D	Wet	2	LF SIDE	FLAT	199.0	6.0212	2.90	0.00	180.0	Pass
542.0015.003-D	Wet	3	REAR	FLAT	199.0	5.9948	0.00	0.00	126.4	Pass
542.0015.003-D	Wet	4	REAR	FLAT	199.0	5.9970	0.40	0.00	150.1	Pass
542.0015.003-D	Wet	5	FRONT	HEMI	149.0	5.2154	0.00	0.00	75.8	Pass
542.0015.003-D	Wet	6	FRONT	HEMI	149.0	5.2180	0.00	0.00	130.3	Pass
542.0015.003-D	Wet	7	RT SIDE	HEMI	149.0	5.2242	0.00	0.00	75.3	Pass
542.0015.003-D	Wet	8	RT SIDE	HEMI	149.0	5.2238	0.00	0.00	105.7	Pass

Contract File No.: 542.0015

Test File: 003

T:\Templates\DOT Helmet Templates\Official DOT Report Template for ACT Taicang 17 July 2013.dot

Control Document Rev. 17 July 2013

Technician: Kidman Yu

Test Date: 05 September 2014

## 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 =  $0.5 \pm 0.1$  mm ( $0.02 \pm 0.004$  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  $3.8 \pm 0.038$  cm ( $1.5 \pm 0.015$  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	PASS		AMBIENT
2	A	Right Rear	PASS		AMBIENT
3	B	Crown	PASS		LOW TEMPERATURE
4	B	Right Rear	PASS		LOW TEMPERATURE
5	C	Crown	PASS		HIGH TEMPERATURE
6	C	Right Rear	PASS		HIGH TEMPERATURE
7	D	Crown	PASS		IMMERSED
8	D	Right Rear	PASS		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 2.5 cm (1.0 INCH) AFTER LOAD INCREASE

HELMET	CONDITIONS	ELONGATION (cm)
A	AMBIENT	1.4
B	LOW TEMPERATURE	1.5
C	HIGH TEMPERATURE	1.4
D	WATER IMMERSED	1.4

**PERIPHERAL VISION** - 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
DEGREE EACH SIDE M.S. PLANE	> 105°	Pass: > 105°
BROW OPENING	> 2.5 cm (1 inch)	Pass: >2.5 cm at 105°

## 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	Vent Cover Operation Switch (Non-rigid)	3 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 or identification	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

COMMENTS: 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	

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

**TEST DATA**

Contract File No.: 542.0015

Test File: 003

T:\Templates\DOT Helmet Templates\Official DOT Report Template for ACT Taicang 17 July 2013.dot  
Control Document Rev. 17 July 2013

Technician: Kidman Yu

Test Date: 05 September 2014

# Uni-Axial Calibration

M.E.P. Pad Model : 1 MEP

Helmet Manufacturer : YC  
Address :

Laboratory Temperature : 22 deg C

Laboratory Humidity : 57 %

Selected Filter Frequency : 1000 Hz

Acc. sensitivity (axis Z) : 10.12 mV/G

Acc. sensitivity (axis X) : 10.33 mV/G

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

Testing Laboratory : Taicang ACT Lab

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

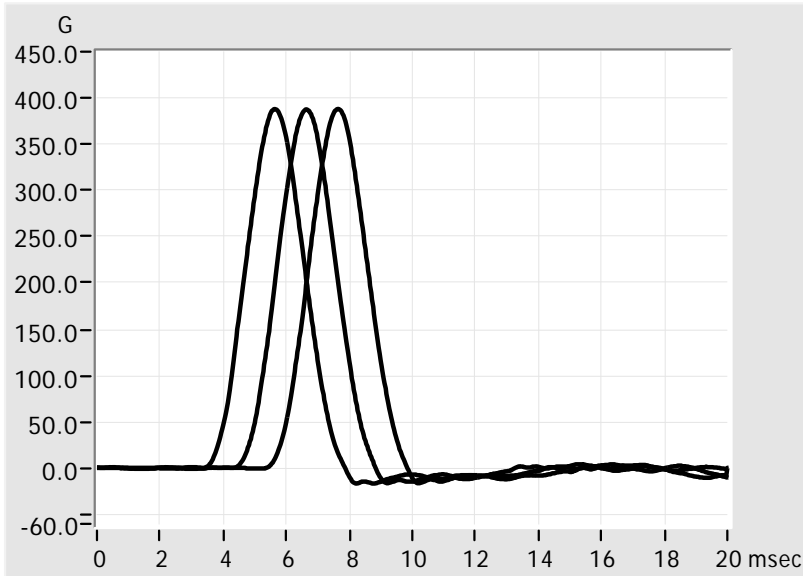
Drop Device : Spherical Impactor (Uni-Axial)

Drop mass assembly : 5.000 kg Time gate flag height : 25.60 mm

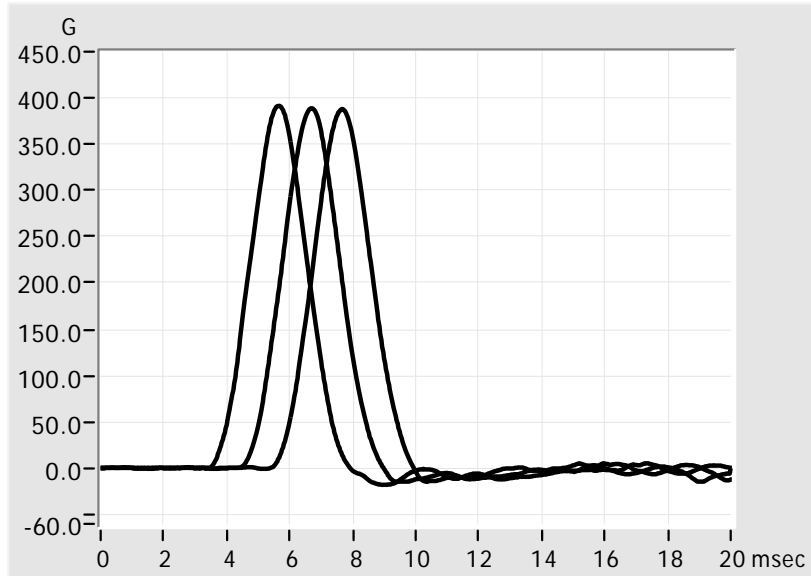
Calibration peak : 400.0 G +/- 20.00 G

Laboratory Technician name : Edward

**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	387.9	4.4027	106.0	2.40	2.01	0/0	2014-09-05	09:42:20	3.4	Pass
	2	387.4	4.4053	106.0	2.39	2.01	0/0	2014-09-05	09:43:20	3.4	Pass
	3	387.9	4.4268	106.0	2.39	2.01	0/0	2014-09-05	09:44:21	2.9	Pass
Post-Test	1	391.3	4.4268	106.0	2.38	1.99	0/0	2014-09-05	10:38:09	2.9	Pass
	2	388.4	4.4224	106.0	2.39	1.99	0/0	2014-09-05	10:39:10	3.0	Pass
	3	387.9	4.4111	106.0	2.39	1.99	0/0	2014-09-05	10:40:11	3.3	Pass

Curve impact #2 : shift of 1ms  
Curve impact #3 : shift of 2ms

# Impact Uni-Axial

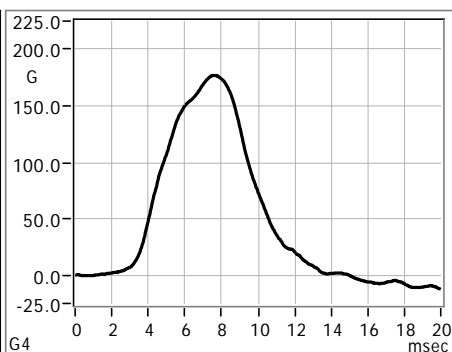
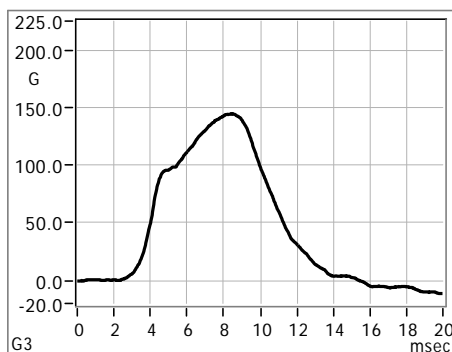
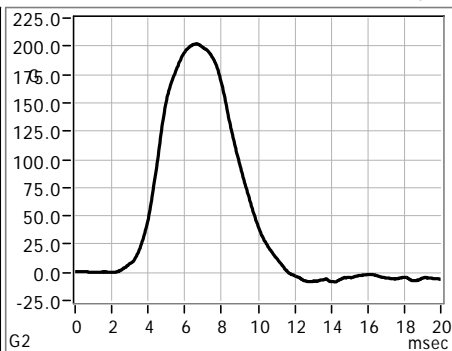
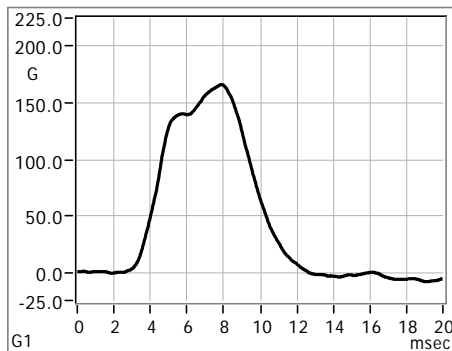
Testing Laboratory : Taicang ACT Lab  
 Address : No.35 Zhenghe Road, Ludu Town,  
 Taicang City, Suzhou, Jiangsu  
 Province, China 215412

Helmet Manufacturer : YC  
 Address :

Laboratory Technician name : Edward

Batch Number :

Ref. P.O. Number :



Model : BULLITT CARBON  
 Color : Carbon  
 Size : L  
 Weight : 1068.00 g  
 Manufacturing Date : 05 Sep 2014  
 Standard Request : FMVSS218  
 Identification Code : 542.0015.003-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/s<sup>2</sup> authorized : 3923 m/s<sup>2</sup>  
 Drop mass assembly : 5.000 kg  
 Time gate flag height : 25.60 mm  
 Acc. sensibility (axis Z) : 10.12

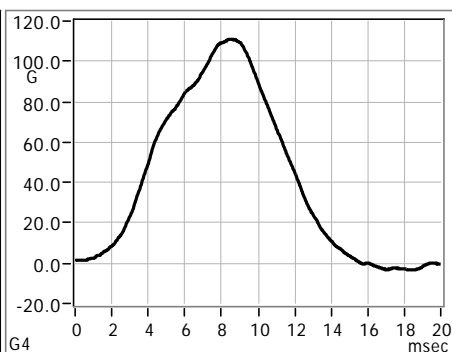
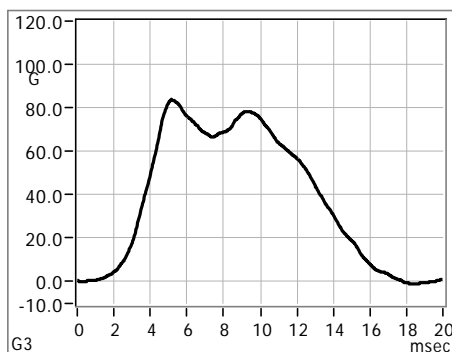
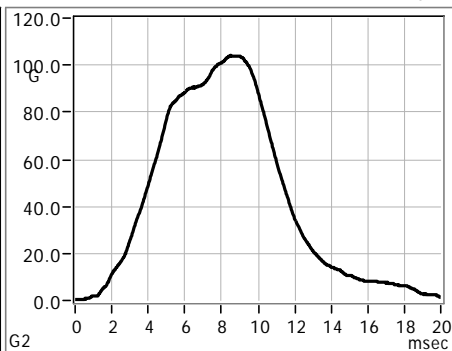
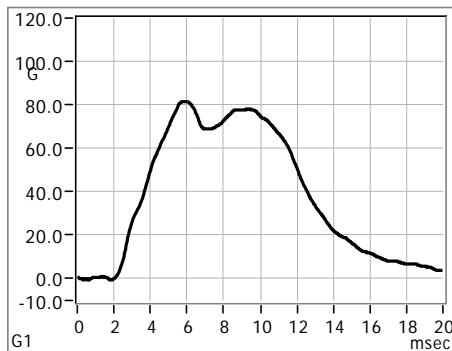
Impact #	Peak Acc. (G)	Velocity IN (m/sec)	Drop Height (cm)	Anvil type	Delta T 150G (msec)	Delta T 200G (msec)	Position	Test Date	Test Time	Friction (%)	PASS or FAIL
1	166.0	5.9524	199.0	FLAT	1.84	0.00	LF SIDE	2014-09-05	10:13:06	4.7	Pass
2	202.2	5.9936	199.0	FLAT	3.27	0.61	LF SIDE	2014-09-05	10:13:20	4.1	Pass
3	144.7	5.9729	199.0	FLAT	0.00	0.00	REAR	2014-09-05	10:21:15	4.4	Pass
4	176.6	5.9747	199.0	FLAT	2.70	0.00	REAR	2014-09-05	10:21:33	4.4	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 : YC  
 Address :

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



Model : BULLITT CARBON  
 Color : Carbon  
 Size : L  
 Weight : 1068.00 g  
 Manufacturing Date : 05 Sep 2014  
 Standard Request : FMVSS218  
 Identification Code : 542.0015.003-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/s<sup>2</sup> authorized : 3923 m/s<sup>2</sup>  
 Drop mass assembly : 5.000 kg  
 Time gate flag height : 25.60 mm  
 Acc. sensibility (axis Z) : 10.12

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	81.5	5.1585	149.0	HEMI	0.00	0.00	FRONT	2014-09-05	10:26:38	4.6	Pass
6	104.2	5.2269	149.0	HEMI	0.00	0.00	FRONT	2014-09-05	10:26:51	3.3	Pass
7	84.0	5.2161	149.0	HEMI	0.00	0.00	RT SIDE	2014-09-05	10:32:00	3.5	Pass
8	111.0	5.2195	149.0	HEMI	0.00	0.00	RT SIDE	2014-09-05	10:32:12	3.4	Pass



# Impact Uni-Axial

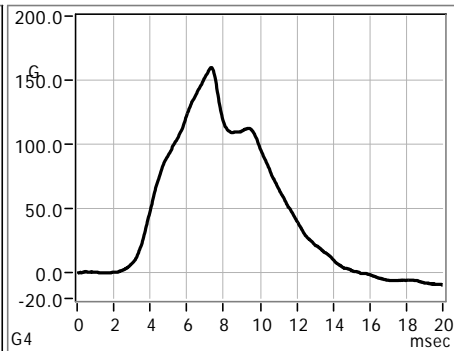
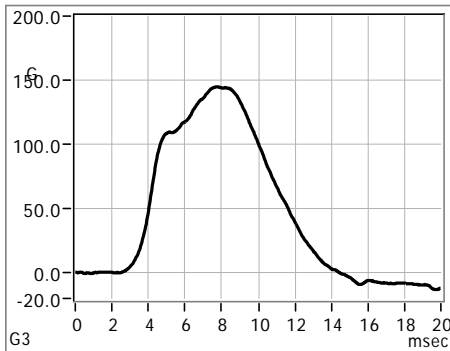
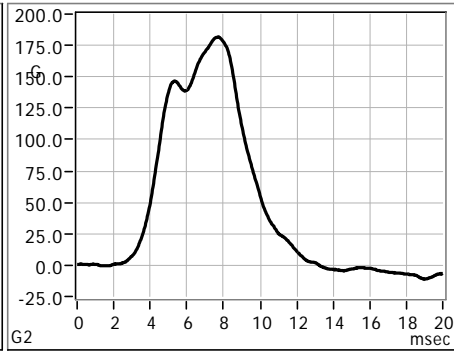
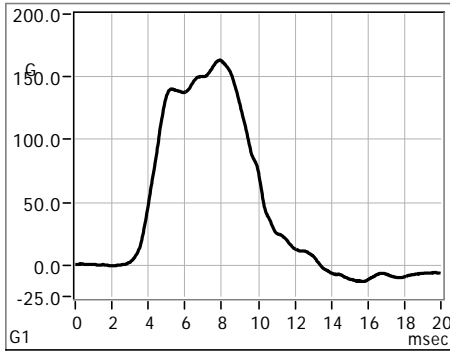
Testing Laboratory : Taicang ACT Lab  
 Address : No.35 Zhenghe Road, Ludu Town,  
 Taicang City, Suzhou, Jiangsu  
 Province, China 215412

Helmet Manufacturer : YC  
 Address :

Laboratory Technician name : Edward

Batch Number :

Ref. P.O. Number :



Model : BULLITT CARBON  
 Color : Carbon  
 Size : L  
 Weight : 1060.00 g  
 Manufacturing Date : 05 Sep 2014  
 Standard Request : FMVSS218  
 Identification Code : 542.0015.003-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/s<sup>2</sup> authorized : 3923 m/s<sup>2</sup>  
 Drop mass assembly : 5.000 kg  
 Time gate flag height : 25.60 mm  
 Acc. sensibility (axis Z) : 10.12

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	163.6	6.0115	199.0	FLAT	1.77	0.00	LF SIDE	2014-09-05	10:14:45	3.8	Pass
2	181.9	6.0097	199.0	FLAT	2.18	0.00	LF SIDE	2014-09-05	10:14:58	3.8	Pass
3	144.7	5.9704	199.0	FLAT	0.00	0.00	REAR	2014-09-05	10:22:18	4.4	Pass
4	159.7	5.9822	199.0	FLAT	0.66	0.00	REAR	2014-09-05	10:22:33	4.2	Pass

# Impact Uni-Axial

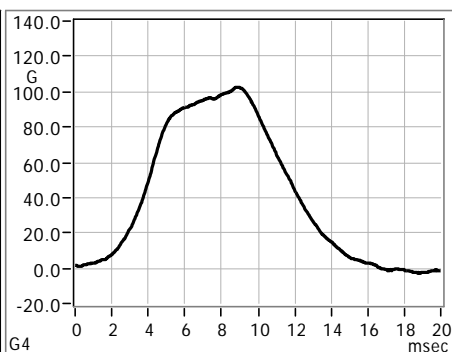
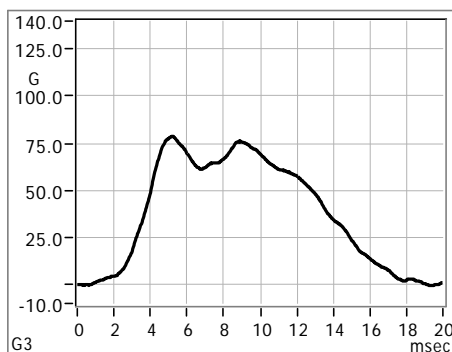
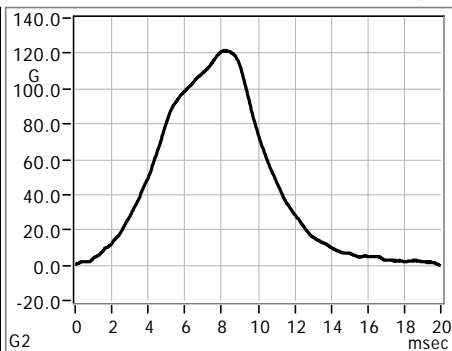
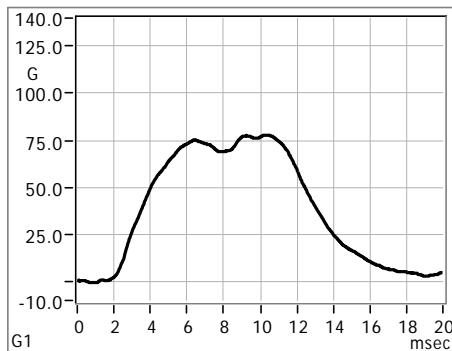
Testing Laboratory : Taicang ACT Lab  
 Address : No.35 Zhenghe Road, Ludu Town,  
 Taicang City, Suzhou, Jiangsu  
 Province, China 215412

Helmet Manufacturer : YC  
 Address :

Laboratory Technician name : Edward

Batch Number :

Ref. P.O. Number :



Model : BULLITT CARBON  
 Color : Carbon  
 Size : L  
 Weight : 1060.00 g  
 Manufacturing Date : 05 Sep 2014  
 Standard Request : FMVSS218  
 Identification Code : 542.0015.003-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/s<sup>2</sup> authorized : 3923 m/s<sup>2</sup>  
 Drop mass assembly : 5.000 kg  
 Time gate flag height : 25.60 mm  
 Acc. sensibility (axis Z) : 10.12

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	5.2150	149.0	HEMI	0.00	0.00	FRONT	2014-09-05	10:27:48	3.5	Pass
6	121.6	5.2319	149.0	HEMI	0.00	0.00	FRONT	2014-09-05	10:28:00	3.2	Pass
7	78.6	5.2150	149.0	HEMI	0.00	0.00	RT SIDE	2014-09-05	10:33:03	3.5	Pass
8	102.3	5.2119	149.0	HEMI	0.00	0.00	RT SIDE	2014-09-05	10:33:16	3.6	Pass

# Impact Uni-Axial

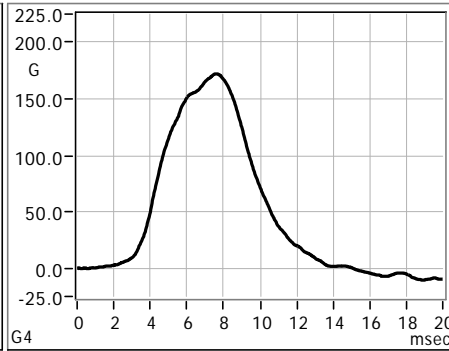
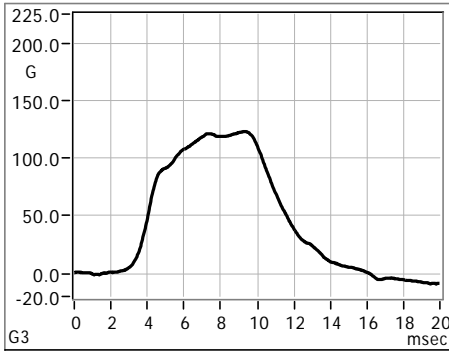
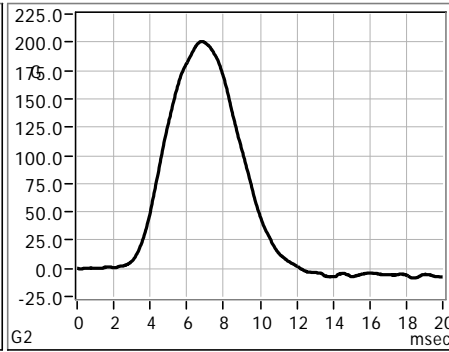
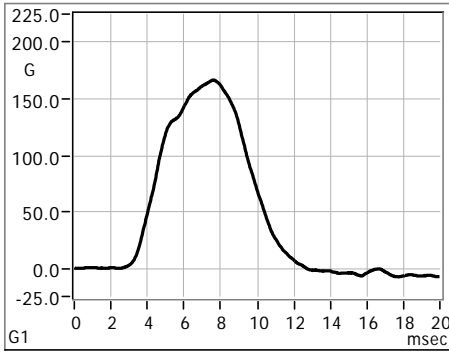
Testing Laboratory : Taicang ACT Lab  
 Address : No.35 Zhenghe Road, Ludu Town,  
 Taicang City, Suzhou, Jiangsu  
 Province, China 215412

Helmet Manufacturer : YC  
 Address :

Laboratory Technician name : Edward

Batch Number :

Ref. P.O. Number :



Model : BULLITT CARBON  
 Color : Carbon  
 Size : L  
 Weight : 1068.00 g  
 Manufacturing Date : 05 Sep 2014  
 Standard Request : FMVSS218  
 Identification Code : 542.0015.003-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/s<sup>2</sup> authorized : 3923 m/s<sup>2</sup>  
 Drop mass assembly : 5.000 kg  
 Time gate flag height : 25.60 mm  
 Acc. sensibility (axis Z) : 10.12

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	166.5	6.0130	199.0	FLAT	2.25	0.00	LF SIDE	2014-09-05	10:16:02	3.8	Pass
2	200.7	6.0012	199.0	FLAT	2.99	0.27	LF SIDE	2014-09-05	10:16:14	3.9	Pass
3	123.0	5.9775	199.0	FLAT	0.00	0.00	REAR	2014-09-05	10:23:13	4.3	Pass
4	171.8	5.9768	199.0	FLAT	2.57	0.00	REAR	2014-09-05	10:23:27	4.3	Pass

# Impact Uni-Axial

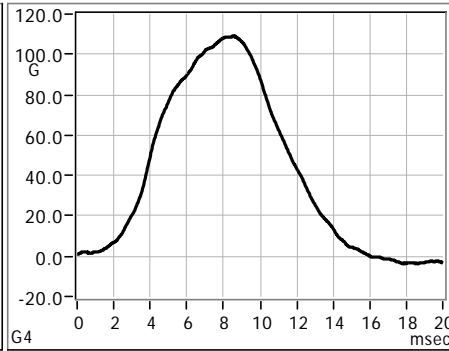
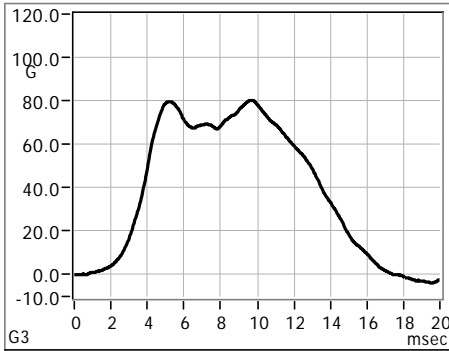
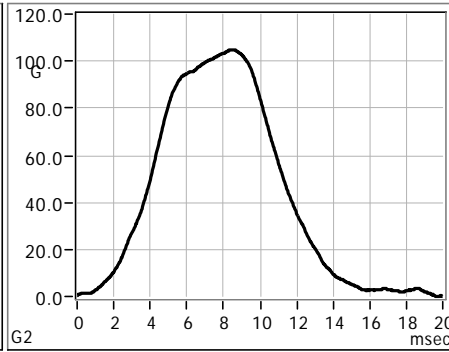
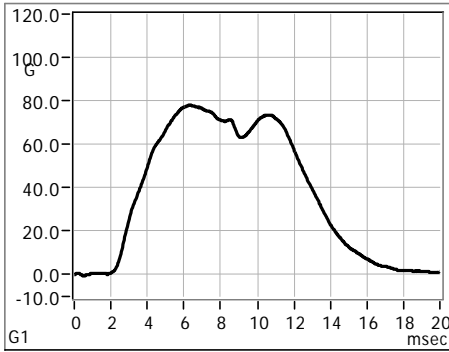
Testing Laboratory : Taicang ACT Lab  
 Address : No.35 Zhenghe Road, Ludu Town,  
 Taicang City, Suzhou, Jiangsu  
 Province, China 215412

Helmet Manufacturer : YC  
 Address :

Laboratory Technician name : Edward

Batch Number :

Ref. P.O. Number :



Model : BULLITT CARBON  
 Color : Carbon  
 Size : L  
 Weight : 1068.00 g  
 Manufacturing Date : 05 Sep 2014  
 Standard Request : FMVSS218  
 Identification Code : 542.0015.003-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/s<sup>2</sup> authorized : 3923 m/s<sup>2</sup>  
 Drop mass assembly : 5.000 kg  
 Time gate flag height : 25.60 mm  
 Acc. sensibility (axis Z) : 10.12

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	78.2	5.2067	149.0	HEMI	0.00	0.00	FRONT	2014-09-05	10:28:52	3.7	Pass
6	104.7	5.2048	149.0	HEMI	0.00	0.00	FRONT	2014-09-05	10:29:05	3.7	Pass
7	80.1	5.2138	149.0	HEMI	0.00	0.00	RT SIDE	2014-09-05	10:34:15	3.6	Pass
8	109.0	5.2165	149.0	HEMI	0.00	0.00	RT SIDE	2014-09-05	10:34:38	3.5	Pass

# Impact Uni-Axial

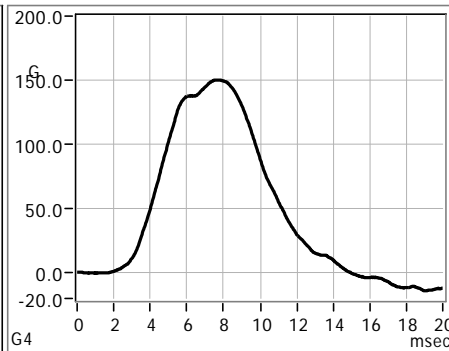
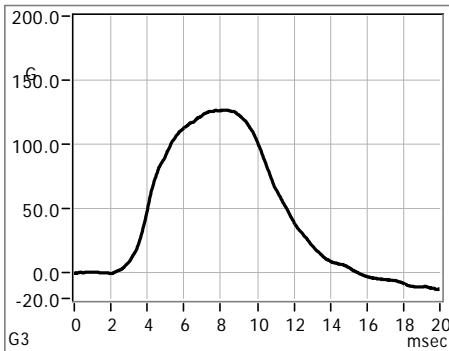
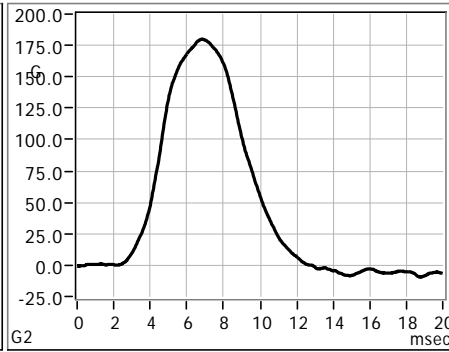
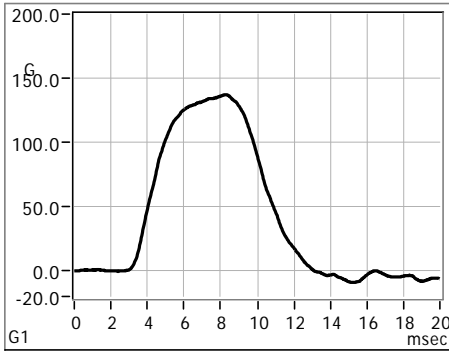
Testing Laboratory : Taicang ACT Lab  
 Address : No.35 Zhenghe Road, Ludu Town,  
 Taicang City, Suzhou, Jiangsu  
 Province, China 215412

Helmet Manufacturer : YC  
 Address :

Laboratory Technician name : Edward

Batch Number :

Ref. P.O. Number :



Model : BULLITT CARBON  
 Color : Carbon  
 Size : L  
 Weight : 1068.00 g  
 Manufacturing Date : 05 Sep 2014  
 Standard Request : FMVSS218  
 Identification Code : 542.0015.003-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/s<sup>2</sup> authorized : 3923 m/s<sup>2</sup>  
 Drop mass assembly : 5.000 kg  
 Time gate flag height : 25.60 mm  
 Acc. sensibility (axis Z) : 10.12

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	137.0	6.0178	199.0	FLAT	0.00	0.00	LF SIDE	2014-09-05	10:17:28	3.7	Pass
2	180.0	6.0212	199.0	FLAT	2.90	0.00	LF SIDE	2014-09-05	10:17:44	3.6	Pass
3	126.4	5.9948	199.0	FLAT	0.00	0.00	REAR	2014-09-05	10:24:07	4.0	Pass
4	150.1	5.9970	199.0	FLAT	0.40	0.00	REAR	2014-09-05	10:24:20	4.0	Pass

# Impact Uni-Axial

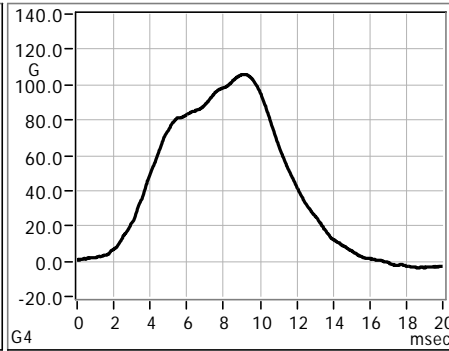
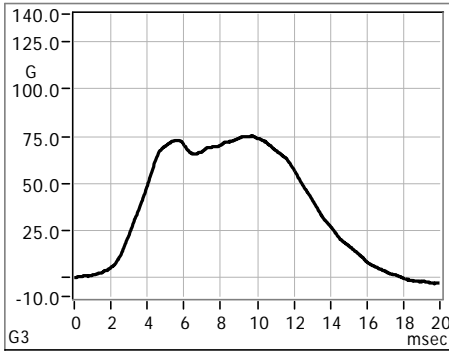
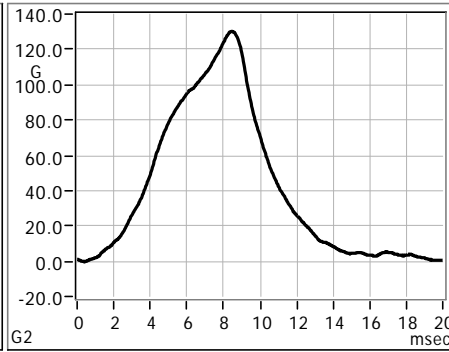
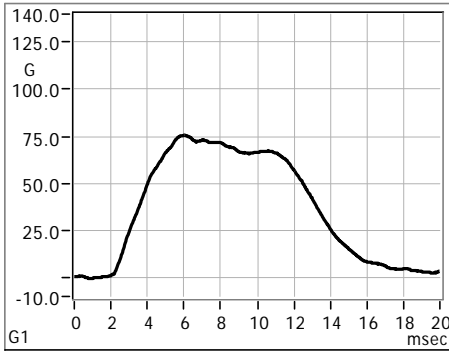
Testing Laboratory : Taicang ACT Lab  
 Address : No.35 Zhenghe Road, Ludu Town,  
 Taicang City, Suzhou, Jiangsu  
 Province, China 215412

Helmet Manufacturer : YC  
 Address :

Laboratory Technician name : Edward

Batch Number :

Ref. P.O. Number :



Model : BULLITT CARBON  
 Color : Carbon  
 Size : L  
 Weight : 1068.00 g  
 Manufacturing Date : 05 Sep 2014  
 Standard Request : FMVSS218  
 Identification Code : 542.0015.003-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/s<sup>2</sup> authorized : 3923 m/s<sup>2</sup>  
 Drop mass assembly : 5.000 kg  
 Time gate flag height : 25.60 mm  
 Acc. sensibility (axis Z) : 10.12

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	75.8	5.2154	149.0	HEMI	0.00	0.00	FRONT	2014-09-05	10:30:01	3.5	Pass
6	130.3	5.2180	149.0	HEMI	0.00	0.00	FRONT	2014-09-05	10:30:13	3.5	Pass
7	75.3	5.2242	149.0	HEMI	0.00	0.00	RT SIDE	2014-09-05	10:35:34	3.4	Pass
8	105.7	5.2238	149.0	HEMI	0.00	0.00	RT SIDE	2014-09-05	10:35:48	3.4	Pass

# DOT Auto – Test results

## Laboratory

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

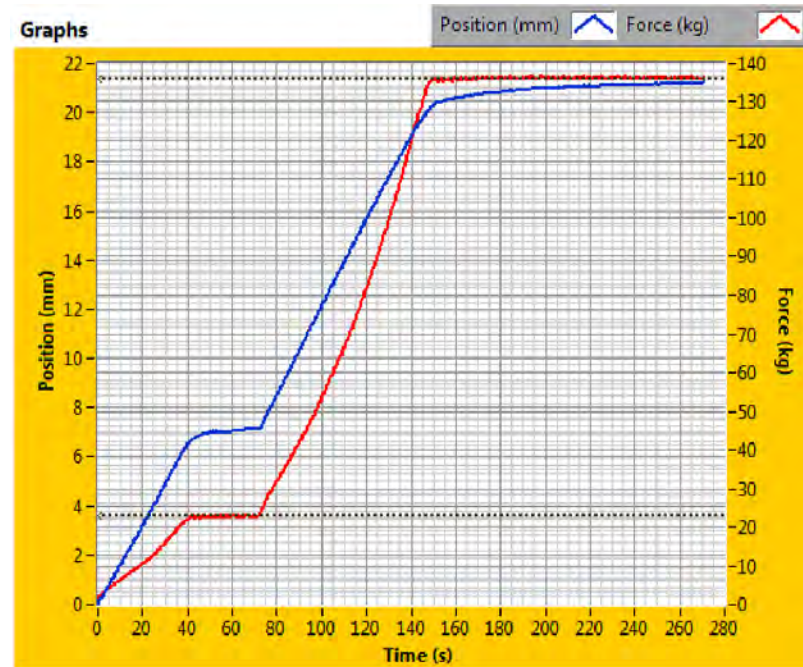
## Sample

**Model** BULLITT CARBON  
**Color** CARBON  
**Size** L  
**Weight** 1068  
**Manufacturer** YC  
**Manuf. Date** 08/14

## Infos

**Standard** FMVSS NO.218  
**Comment** 542.0015.003-A

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#49	05/09/14 13:08:49	NO	Valid	22.7	30.0	136.1	120.0	13.9	Pass

# DOT Auto – Test results

## Laboratory

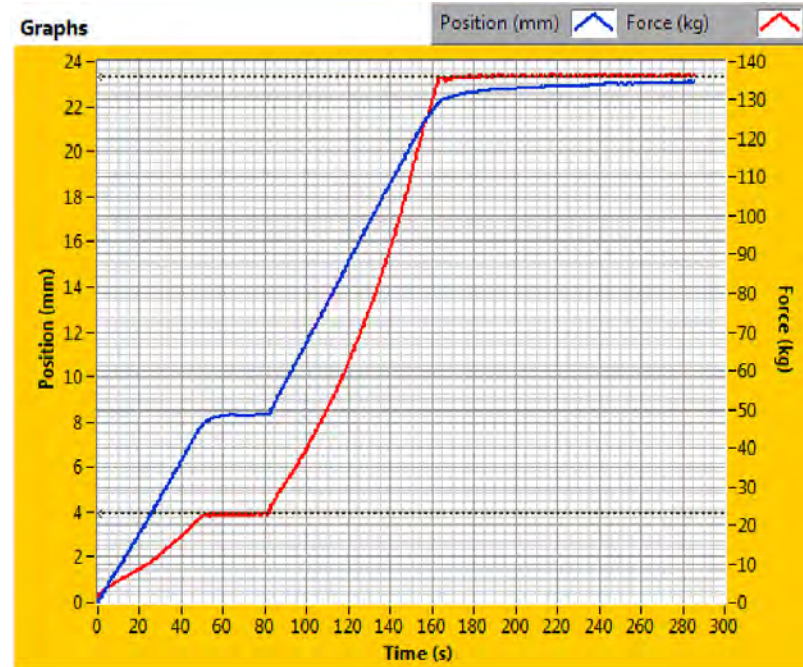
Laboratory ACT Lab  
 Technician Carry  
 Temperature 22°C  
 Humidity 57%

## Sample

Model BULLITT CARBON  
 Color CARBON  
 Size L  
 Weight 1060  
 Manufacturer YC  
 Manuf. Date 08/14

## Infos

Standard FMVSS NO.218  
 Comment 542.0015.003-B



## Results

Test	Time Date D/M/Y h:ms	DL ?	Status	Tar1 (Kg)	Tar1 (S)	Tar2 (Kg)	Tar2 (S)	Delta(Del1 to Del2) (mm)	Pass/Fail
Test#50	05/09/14 13:14:40	NO	Valid	22.7	30.0	136.1	120.0	14.5	Pass



# DOT Auto – Test results

## Laboratory

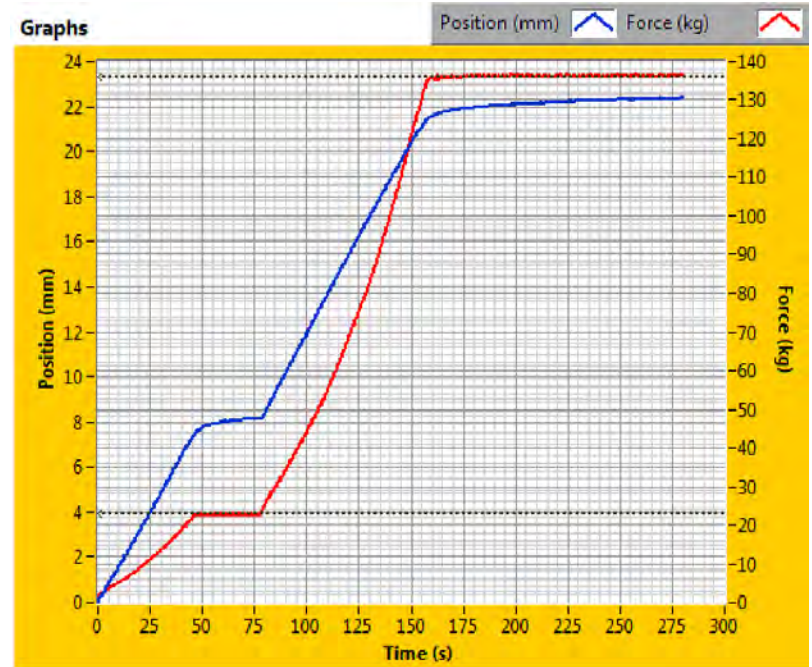
Laboratory ACT Lab  
 Technician Carry  
 Temperature 22°C  
 Humidity 57%

## Sample

Model BULLITT CARBON  
 Color CARBON  
 Size L  
 Weight 1068  
 Manufacturer YC  
 Manuf. Date 08/14

## Infos

Standard FMVSS NO.218  
 Comment 542.0015.003-C



## Results

Test	Time Date D/M/Y h:ms	DL ?	Status	Tar1 (Kg)	Tar1 (S)	Tar2 (Kg)	Tar2 (S)	Delta(Del1 to Del2) (mm)	Pass/Fail
Test#51	(05/09/14 13:20:55)	NO	Valid	22.7	30.0	136.1	120.0	14.1	Pass

# DOT Auto – Test results

## Laboratory

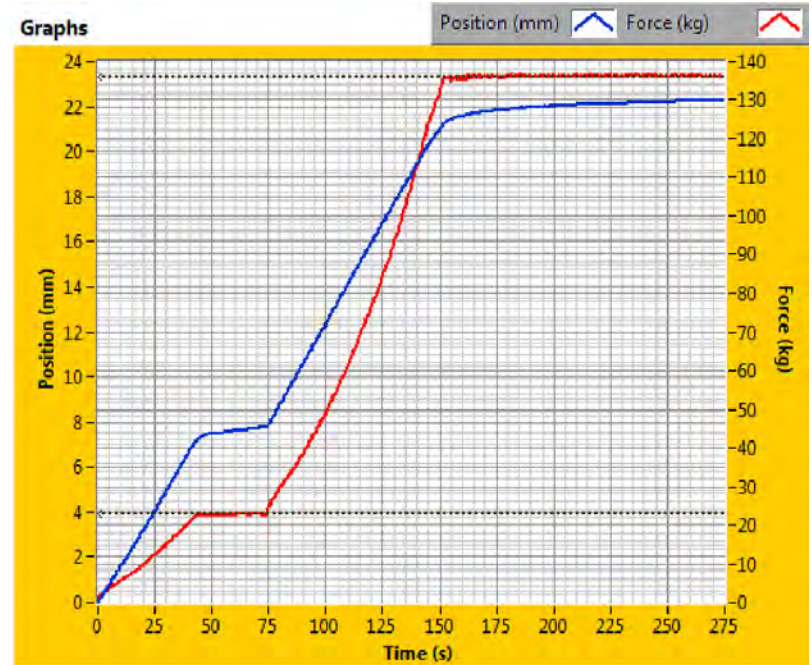
**Laboratory** ACT Lab  
**Technician** Carry  
**Temperature** 22°C  
**Humidity** 57%

## Sample

**Model** BULLITT CARBON  
**Color** CARBON  
**Size** L  
**Weight** 1068  
**Manufacturer** YC  
**Manuf. Date** 08/14

## Infos

**Standard** FMVSS NO.218  
**Comment** 542.0015.003-D



## Results

Test	Time Date D/M/Y h:ms	DL ?	Status	Tar1 (Kg)	Tar1 (S)	Tar2 (Kg)	Tar2 (S)	Delta(Del1 to Del2) (mm)	Pass/Fail
Test#52	05/09/14 13:27:09	NO	Valid	22.7	30.0	136.1	120.0	14.4	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		Model	Assembly Wt., grams
Uni-Axial	Headform Size A DOT SMALL	Cadex	3454
Uni-Axial	Headform Size C DOT MEDIUM	Cadex	4941
Uni-Axial	Headform Size D DOT LARGE	Cadex	6071

##### Sensors

Item		Model	S/N
Uni-Axial	Accelerometer - axis Z (10.120 mV/G)	2262A-1000	L14909

### EQUIPMENT LIST AND CALIBRATION SCHEDULES

DOT Fixtures						
<i>Label</i>	<i>Description</i>	<i>Manufacture</i>	<i>Model</i>	<i>S/N</i>	<i>Dimensional Check</i>	<i>Next</i>
	Monorail	CadexInc	None	None	13 Sep 2013	13 Sep 2014
	Penetrator Tube	ACT Lab	None	None	13 Sep 2013	13 Sep 2014
	Penetrator Dart	CadexInc	ONE 7-10-7	None	13 Sep 2013	13 Sep 2014
	DOT Small Headform	CadexInc	None	5178	13 Sep 2013	13 Sep 2014
	DOT Medium Headform	CadexInc	None	5179	13 Sep 2013	13 Sep 2014
	DOT Large Headform	CadexInc	None	5199	13 Sep 2013	13 Sep 2014
	Reference Headform	CadexInc	None	5181	13 Sep 2013	13 Sep 2014
	Reference Headform	CadexInc	None	5182	13 Sep 2013	13 Sep 2014
	Reference Headform	CadexInc	None	5183	13 Sep 2013	13 Sep 2014
	MEP Pad	CadexInc	None	981220	13 Sep 2013	13 Sep 2014
	Anvil	CadexInc	Flat	None	13 Sep 2013	13 Sep 2014
	Anvil	CadexInc	Hemi	None	13 Sep 2013	13 Sep 2014
	High temp Cabinet	Shanghai Boxn	GZX-9240MBE	8285	13 Sep 2013	13 Sep 2014
	Low temp Cabinet	Haier	DW-25W300	BR062100NO OB29578VMO	13 Sep 2013	13 Sep 2014
	Water conditioning Container	None	None	None	13 Sep 2013	13 Sep 2014
	Retention Strength Tester	CadexInc	None	None	13 Sep 2013	13 Sep 2014
	Laser Level	CadexInc	None	None	13 Sep 2013	13 Sep 2014
	Computer	HP	DX2040	CNG9211DB1	13 Sep 2013	13 Sep 2014

**DOT Calibrated Measurement Equipment**

Description	Manufacture	Model	S/N	Range	Accuracy from Cal Certs	Calibration			Maintenance	
						Last	Next	by	Last	Next
Velocity Gate Flag	CadexInc	None	None	25.6 mm	1.00 mm	13 Sep 2012	13 Sep 2013	ACT	13 Sep 2013	13 Sep 2014
Accelerometer	PCB	353B18	131607	2000 g	2.71%	13 Sep 2012	13 Sep 2013	KSFY	13 Sep 2013	13 Sep 2014
Power Supply	Santak	MT100	None	-		-	-	-	-	-
Charge Amplifier	Schaevitz	ATA2001	None	-		25 Nov 2012	25 Nov 2013	NIM	25 Nov 2013	25 Nov 2014
Control Center System	Cadex	Pc4300	None	-	0.16 ms	-	-	-	-	-
Velocity Gate	CadexInc	None	HVTG120090 331-1	-		31 Mar 2009	NA	CadexInc	31 Mar 2013	NA
Environmental Monitoring	Taiwan Taishi	1360A	090602605	-40 to +95C	2	27 Sep 2010	NA	KSFY	27 Sep 2012	NA
Scale	Henxin	ACS-6	0118223	0-6000 g	0.050 g	12 May 2014	12 May 2015	KSFY	12 May 2014	12 May 2015
Loadcell	CadexInc	9363-b10-300-20T1R	None	300 lbs.	0.1	8 Sep 2013	8 Sep 2014	KSFY	8 Sep 2013	8 Sep 2014
LVDT	Volfa	LWE-200	20028265	2.5 inch	0.01	19 Sep 2013	19 Sep 2014	KSFY	19 Sep 2013	19 Sep 2014
Peripheral Vision Apparatus	Ludufactory	None	None	105 degree	0.7 degree	14 Sep 2013	14 Sep 2014	ACT	14 Sep 2013	14 Sep 2014
Digital Caliper	JS	150X0.01	300065	0-150 mm	0.01 mm	3 May 2014	3 May 2015	KSFY	3 May 2014	3 May 2015
Height Gauge	Shanghai LR	None	9090053	0-500 mm	0.01 mm	14 Sep 2013	14 Sep 2014	KSFY	8 Sep 2013	14 Sep 2014

Contract File No.: 542.0015

Test File: 003

Technician: Kidman Yu

Test Date: 05 September 2014

T:\Templates\DOT Helmet Templates\Official DOT Report Template for ACT Taicang 17 July 2013.dot

Control Document Rev. 17 July 2013

**APPENDIX C**  
**PHOTOGRAPHS**



Monorail Apparatus



Retention System  
Strength Test Apparatus



Data Acquisition Equipment





High Temperature Chamber



Low Temperature Conditioning Cabinet



Water Immersion Equipment









**BELL**

**WARNING!**  
**VEHICLE USER'S HELMET**  
**NO HELMET CAN PROTECT THE WEARER AGAINST ALL POSSIBLE OR FORESEEABLE IMPACTS.**

**BELL HELMETS**  
**MADE IN CHINA**

1) FOR MAXIMUM PROTECTION THIS HELMET MUST BE OF GOOD FIT AND ALL RETENTION STRAPS MUST BE SECURELY FASTENED TO RETAIN THE HELMET. THE HELMET WHEN FITTED AND FASTENED, SHALL NOT BE REMOVED EASILY UNDER THIS CONDITION. 2) THIS HELMET IS SO CONSTRUCTED THAT THE ENERGY OF AN IMPACT MAY BE ABSORBED THROUGH ITS PARTIAL DESTRUCTION, THOUGH DAMAGE MAY NOT BE VISIBLE. IF IT SUFFERS SUCH AN IMPACT, IT MUST EITHER BE RETURNED TO THE MANUFACTURER FOR INSPECTION OR BE DESTROYED AND REPLACED. 3) MAKE NO MODIFICATION, TO MAINTAIN THE FULL EFFICIENCY OF THIS HELMET THERE SHALL BE NO ALTERATION TO THE STRUCTURE OF THE HELMET OR ITS COMPONENT PARTS. 4) HELMET CAN BE SERIOUSLY DAMAGED BY SOME COMMON SUBSTANCES SUCH AS GASOLINE, PAINT, ADHESIVES OR CLEANING AGENTS WITHOUT DAMAGE BEING VISIBLE TO USER, APPLY ONLY THE FOLLOWING: NON-ABRASIVE CLEANERS TO THE SHELL, ONLY MILD SOAP AND WATER TO FITPADS AND LINER 5) CERTIFIED AS FULLFACE HELMET 6) HELMET CONSTRUCTED OF COMPOSITE MATERIAL AND POLYESTER RESIN, LINER OF EXPANDED POLYSTYRENE. ENSURE THAT ANY VISON ATTACHED TO THIS HELMET MEETS THE REQUIREMENTS OF AS 1809.

**WARNING!** READ OWNER'S MANUAL FOR REPLACEMENT MANUAL CALL 800-456-BELL  
 MANUFACTURED BY XIAMEN YEU DREAM COMPOSITE TECHNOLOGY  
 DESIGNED BY BIG SPORTS

MODEL: BULLITT CARBON      DATE: SEP 2014

**BELL**

L  
 58 59 cm