

Report No. 254326 - 013

HS# 637985

**MOTORCYCLE HELMET COMPLIANCE TESTING
FMVSS 218**

**Model No.
CALIBER RHD 200V**



FINAL REPORT

218-UST- 05- 013

July 7, 2005

PREPARED FOR

**U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, S.W.
ROOM 6111 (NVS-222)
WASHINGTON, D.C. 20590**

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Report No.: 254326-013

Prepared by: SGS U.S. Testing Company Inc.

Approved by:



John Lomash

Date :

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: Claudia W. Corvell

Acceptance Date: 8/17/05

TECHNICAL REPORT Title Page

1. Report No. 218-UST-05-013	2. Govt. Accession No.	3. Recipient's Catalog No.	
4. Title and Sub-Title Motorcycle Helmet Compliance Testing, FMVSS 218 Model No. CALIBER RHD 200V SZ:XL Final Report.		5. Report Date: July 7, 2005	
		6. Performing Organization Code UST	
7. Author John Lomash, Project Manager		8. Performing Organization Report No. 254326-013	
9. Performing Organization Name and Address: SGS U.S. Testing Company Inc. 291 Fairfield Avenue Fairfield, NJ 07004		10. Work Unit No.	
		11. Contract or Grant No. DTNH22-04-C01002, Modification 003	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance 400 Seventh Street, S.W. Room 6111 (NVS-222) Washington, D.C. 20590		13. Type of Report and Period Covered: FINAL TEST REPORT	
		14. Sponsoring Agency Code NVS-222	
16. Abstract Compliance tests were conducted on the subject Model Motorcycle Helmet in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-218-04. Test failures identified were as follows: NONE			
17. Key Words FMVSS No. 218 Compliance Testing Safety Engineering		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Room 2336 (NPO-405) 400 Seventh Street, SW Washington, D.C. 20590 Tis@nhtsa.dot.gov	
19. Security Classif. (Of This Report) Unclassified	20. Security Classif. (Of This Report) Unclassified	21. No of Pages: 38	22. Price

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SECTION 1

PURPOSE OF COMPLIANCE TEST

PURPOSE AND TEST PROCEDURES

Purpose:

The purpose of this report was to determine if the production motorcycle helmets supplied by the U.S. Department of Transportation met the requirements of Federal Motor Vehicle Safety Standard Number 218-Motorcycle Helmets.

Test Procedure:

The SGS U.S. Testing Company, Instrumentation, Calibration and Test Procedure for Testing of Motorcycle Helmets Under FMVSS 218 (February 2005) as submitted to the Office of Vehicle Safety Compliance, National Highway Traffic Safety Administration and TP-218-04, NHTSA "**Laboratory Test Procedure for FMVSS No. 218 Motorcycle Helmets**".

SECTION 2
COMPLIANCE TEST DATA SUMMARY

COMPLIANCE TEST DATA
FMVSS NO. 218 - MOTORCYCLE HELMETS

HELMET DATA

HELMET MANUFACTURER: CALIBER HELMETS,LLC

HELMET MODEL DESIGNATION: RHD 200V

MONTH AND YEAR OF HELMET MANUFACTURE: 10/04

HELMET BRAND NAME: CALIBER

HELMET SIZE: XL 61-62cm

HELMET COVERAGE: Partial Full Complete Facial

HELMET WEIGHT IN Kilograms + lbs. (A) 934 g (2.0 lbs.) (B) 916 g (2.0 lbs.)
 (C) 927 g (2.0 lbs.) (D) 914 g (2.0 lbs.)

	<u>SHELL</u>	<u>LINER</u>	<u>CROWN PAD</u>	<u>RETENTION SYSTEM</u>
MATERIAL	ABS Plastic	Expanded Polystyrene	Synthetic Foam	Chinstrap
COLOR/PATTERN	Black /Iron Cross	Black	White	Black
BUCKLE FASTENER	---	---	---	BUCKLE

COMMENTS:

RECORDED BY: Edwin Rivera

DATE: July 5, 2005

APPROVED BY: John Lomash

COMPLIANCE TEST DATA
FMVSS NO. 218 - MOTORCYCLE HELMETS

REPORT NO.: 218-UST-05-013

LAB REPORT NO.: 254326-013

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.

<u>HELMET SIZE DESIGNATION</u>	<u>HEADFORM SIZE</u>
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 Size 60)	Large

COMMENTS: HPI (2.4 inches) and headform size (DOT LARGE) for Helmet Caliber RHD200V
 SZ: XL 61-62cm.
 HPI provided by COTR based on information provided by the manufacturer.

CONDITIONING FOR TESTING - Paragraph S6.4 - The protective headgear shall be conditioned for not less than 12 hours, in the specified environmental condition shown below, prior to test.

Low Temperature	-10°C + 4°C, -0°C (14°F + 8°F; - 0°F)
High Temperature	50°C + 0°C, -4°C (122°F + 0°F; -8°F)
Immersed Temperature	25°C ± 6°C (77°F ± 10°F)
Ambient Temperature	21°C ± 6°C (70°F ± 10°F) 40% to 60% Relative Humidity

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.

COMPLIANCE TEST DATA SUMMARY
FMVSS NO. 218 - MOTORCYCLE HELMETS

REPORT NO.: 218-UST-05-013

LAB. REPORT NO.: 254326-013
 DATE OF TEST: July 5-6, 2005

SUMMARY OF TEST RESULTS

INDICATE P-PASS

F-FAIL

HELMET: TEST	A	B	C	D	NOTES
	Low Temp.	High Temp.	Immersed	Ambient	
IMPACT	P	P	P	P	
PENETRATION	P	P	P	P	
RETENTION	P	P	P	P	
PERIPHERAL VISION	P	P	P	P	
PROJECTIONS	P	P	P	P	
LABELING	P	P	P	P	

COMMENTS:

RECORDED BY: Edwin Rivera
 Lomash

APPROVED BY: John

SECTION 3
TEST DATA

**COMPLIANCE TEST DATA
FMVSS NO. 218 - MOTORCYCLE HELMETS**

REPORT NO.: 218-UST-05-013

LAB REPORT NO.: 254326-013

DATE OF TEST: July 6, 2005

	ANVIL	DROP HEIGHT
RIGID	Hemisphere	138.4cm, + 0cm, - 1.3cm (54.5", +0.0", -0.5")
	Flat	182.9cm, + 0cm, - 1.3cm (72.0", + 0.0", -0.5")

AMBIENT TEMP = 23 °C, (72 °F) : RH = 50 %	
Headform Size = Large	DROP ASSY WEIGHT 6.1 kg (13.4 lbs.)
Headform Position Index = 61mm (2.4")	

SYSTEMS	TRIAL	DROP HEIGHT	VEL. (mps)	PEAK "G"	MILLISECONDS @	
					150G	200G
PRE-TEST	1	1.37m/ 54"	5.12	378	2.16	1.84
	2	1.37m/ 54"	5.12	382	2.24	1.92
	3	1.37m/ 54"	5.13	391	2.24	1.92
PRE-TEST AVERAGE XXXXXXXXXXXXXXXXXXXX				384	XXXXXXXXXXXXXXXXXXXX	
POST-TEST	1	1.37m/ 54"	5.16	393	2.32	1.84
	2	1.37m/ 54"	5.14	382	2.16	1.76
	3	1.37m/ 54"	5.14	398	2.16	1.84
POST-TEST AVERAGE XXXXXXXXXXXXXXXXXXXX				391	XXXXXXXXXXXXXXXXXXXX	

DIFFERENCE BETWEEN PRE-TEST AND POST-TEST AVERAGES	7 G's	PEAK G	DIFFERENCE BETWEEN PRE- TEST AND POST- TEST AVERAGES
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RECORDED BY: Edwin Rivera

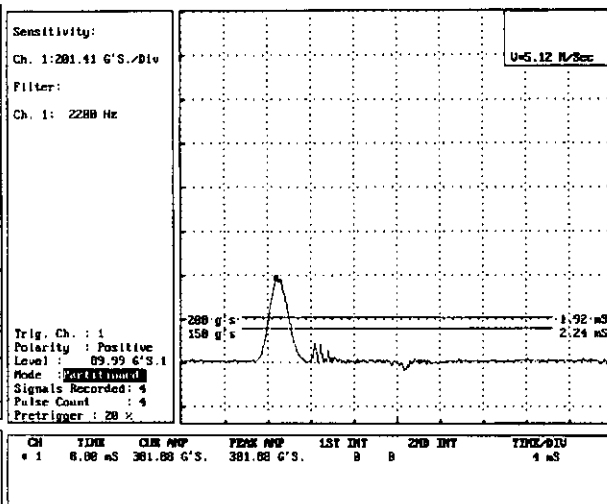
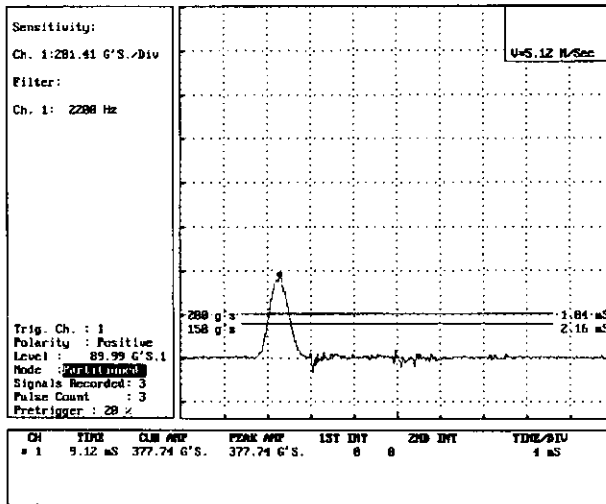
APPROVED BY: John Lomash

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GSI SYSTEMS, INC. CAT SYSTEM

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 LOCATION: MEP TEST PAD
 CLIENT: DOT/NHTSA
 REPORT NO.: 254326-013
 SAMPLE: CALIBER RHD200V XL

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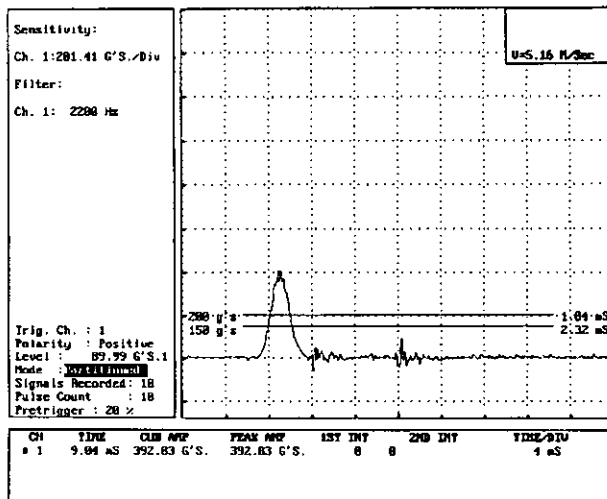
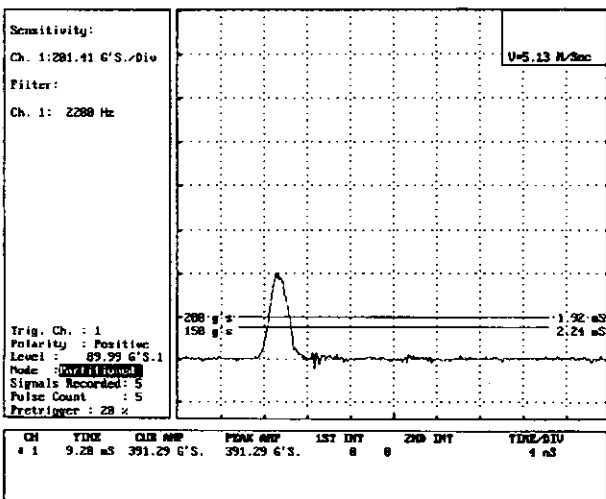


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 SAMPLE: CALIBER RHD200V XL

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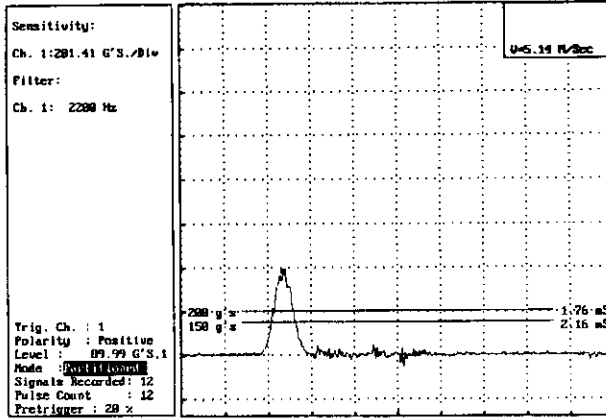


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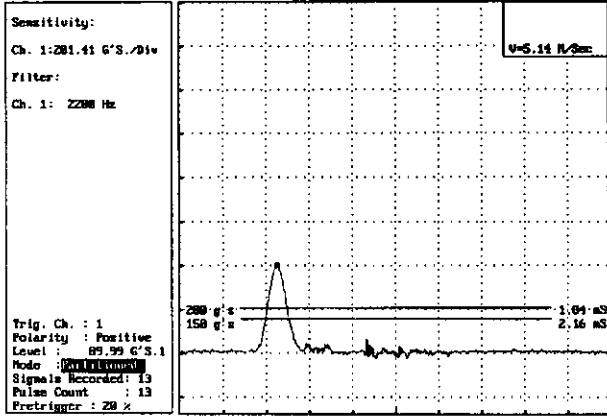
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 LOCATION: MEP TEST PAD SAMPLE: CALIBER RHD200V XL



CH	TIME	CLM AMP	PEAK AMP	1ST INT	2ND INT	TRIG/DIV
1	9.44 ms	361.80 G'S.	381.88 G'S.	0	0	4 ms



CH	TIME	CLM AMP	PEAK AMP	1ST INT	2ND INT	TRIG/DIV
1	9.84 ms	397.65 G'S.	397.65 G'S.	0	0	4 ms

**COMPLIANCE TEST DATA
FMVSS NO. 218 - MOTORCYCLE HELMETS**

REPORT NO.: 218-UST-05-013

LAB REPORT NO.: 254326-013

DATE OF TEST: July 6, 2005

IMPACT TEST

Helmet Condition	ANVIL	IMPACT LOCATION							
		FRONT HEMI		LEFT HEMI		RIGHT FLAT		REAR FLAT	
Ambient	Impact No.	1	2	1	2	1	2	1	2
	Test Record No.	1	2	9	10	17	18	25	26
	Peak "G"	115	140	95	127	197	252	151	237
	ms @ 150 "G"	--	--	--	--	2.24	2.08	--	2.64
	ms @ 200 "G"	--	--	--	--	--	0.4	--	1.36
	Velocity m./sec.	5.15	5.11	5.17	5.17	5.91	5.95	5.93	5.93
Low	Test Record No.	3	4	11	12	19	20	27	28
	Peak "G"	125	140	111	150	180	218	160	243
	ms @ 150 "G"	--	--	--	--	2.0	2.4	0.32	2.48
	ms @ 200 "G"	--	--	--	--	--	0.72	--	1.6
	Velocity m./sec.	5.15	5.11	5.18	5.20	5.92	5.95	5.92	5.89
High	Test Record No.	5	6	13	14	21	22	29	30
	Peak "G"	108	138	96	188	182	222	150	221
	ms @ 150 "G"	--	--	--	0.8	1.28	2.48	--	2.56
	ms @ 200 "G"	--	--	--	--	--	0.32	--	1.04
	Velocity m./sec.	5.11	5.14	5.17	5.20	5.96	5.95	5.89	5.89
Wet	Test Record No.	7	8	15	16	23	24	31	32
	Peak "G"	103	126	111	146	162	217	172	217
	ms @ 150 "G"	--	--	--	--	1.04	2.48	0.64	2.64
	ms @ 200 "G"	--	--	--	--	--	0.64	--	1.12
	Velocity m./sec.	5.11	5.12	5.18	5.17	5.93	5.96	5.93	5.89

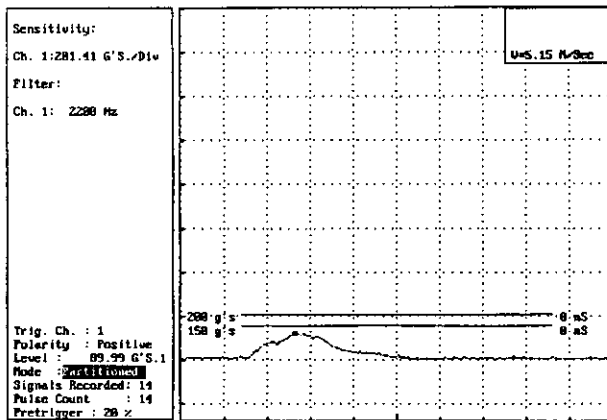
COMMENTS:

RECORDED BY: Edwin Rivera

APPROVED BY: John Lomash

Waveform Test Report
GI SYSTEMS, INC. CAT SYSTEM

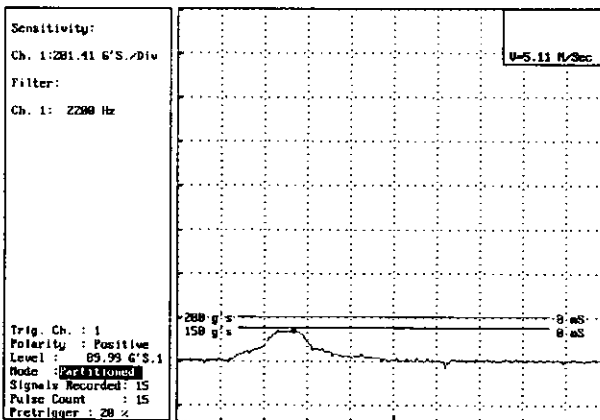
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LOCATION: FRONT HEMI IMPACT SAMPLE: CALIBER RHD200V XL



CH	TIME	CLR AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
1	10.56 uS	114.73 G'S.	114.73 G'S.	0	0	4 uS

Waveform Test Report
GI SYSTEMS, INC. CAT SYSTEM

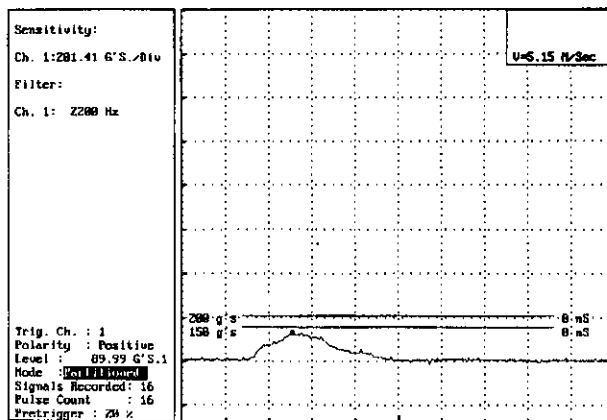
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LOCATION: FRONT HEMI IMPACT SAMPLE: CALIBER RHD200V XL



CH	TIME	CLR AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
1	10.72 uS	139.86 G'S.	139.86 G'S.	0	0	4 uS

Waveform Test Report
GI SYSTEMS, INC. CAT SYSTEM

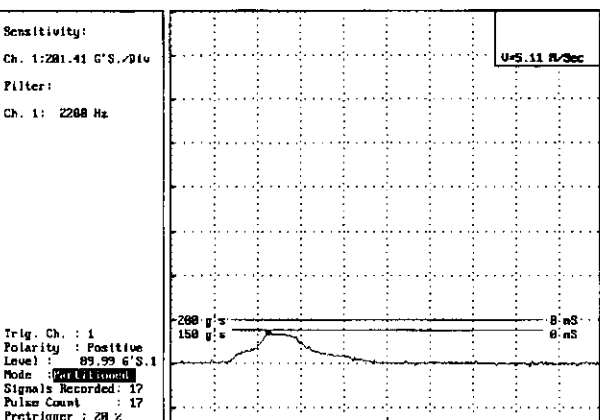
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LOCATION: FRONT HEMI IMPACT SAMPLE: CALIBER RHD200V XL



CH	TIME	CLR AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
1	10.16 uS	124.71 G'S.	124.71 G'S.	0	0	4 uS

Waveform Test Report
GI SYSTEMS, INC. CAT SYSTEM

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LOCATION: FRONT HEMI IMPACT SAMPLE: CALIBER RHD200V XL



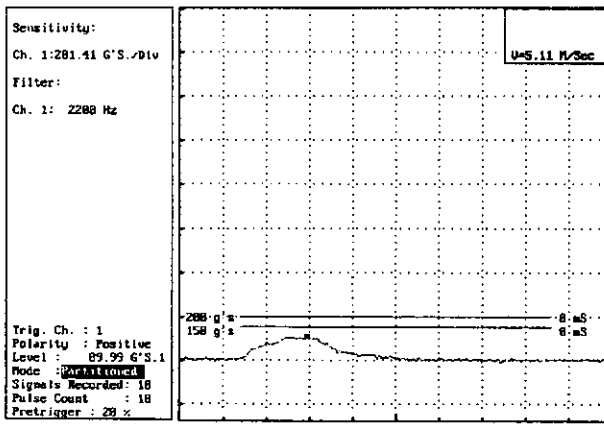
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1	8.96 uS	148.29 G'S.	148.29 G'S.	0	0	4 uS

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

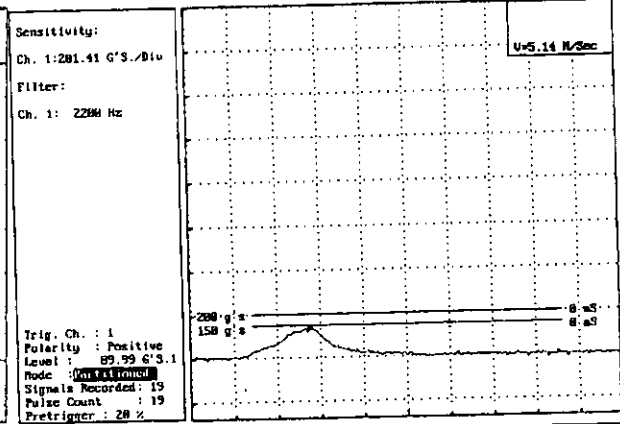
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DATE / TIME Wed Jul 06 05 08:48 CLIENT: DOT/NHTSA
IMP#: /TEMP. 06-HIGH TEMP REPORT NO. 254326-013
LOCATION: FRONT HEMI IMPACT SAMPLE: CALIBER RHD200V XL



CH	TIME	CLR AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
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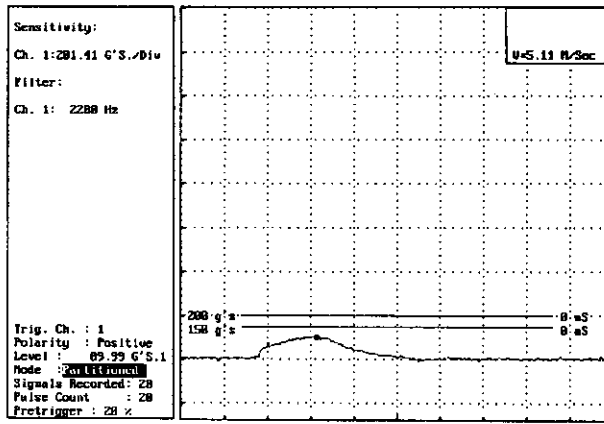
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# 1	11.84 mS	138.88 G'S.	138.88 G'S.	0	0	4 mS

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

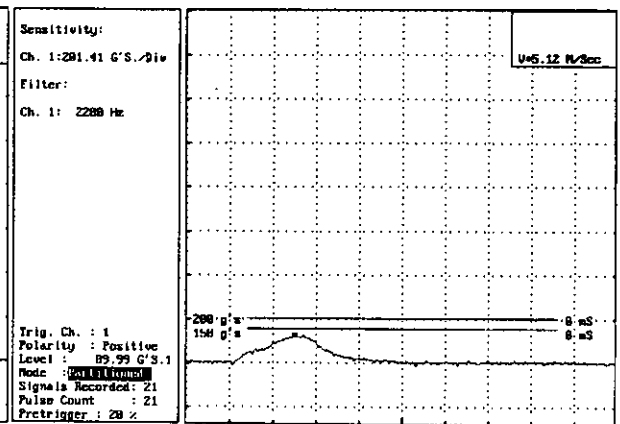
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LOCATION: FRONT HEMI IMPACT SAMPLE: CALIBER RHD200V XL

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 08:50 CLIENT: DOT/NHTSA
IMP#: /TEMP. 08-IMMERSED REPORT NO. 254326-013
LOCATION: FRONT HEMI IMPACT SAMPLE: CALIBER RHD200V XL



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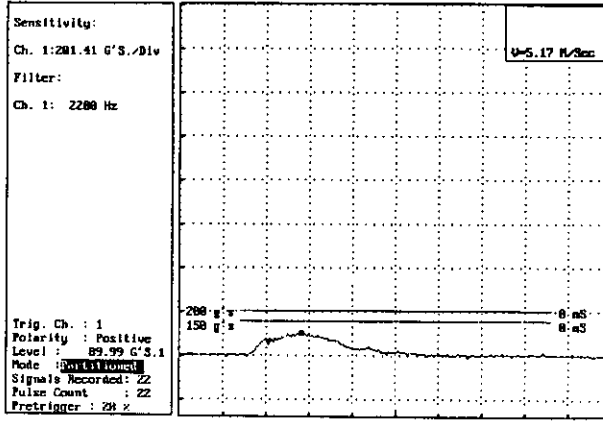
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# 1	10.88 mS	125.94 G'S.	125.94 G'S.	0	0	4 mS

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

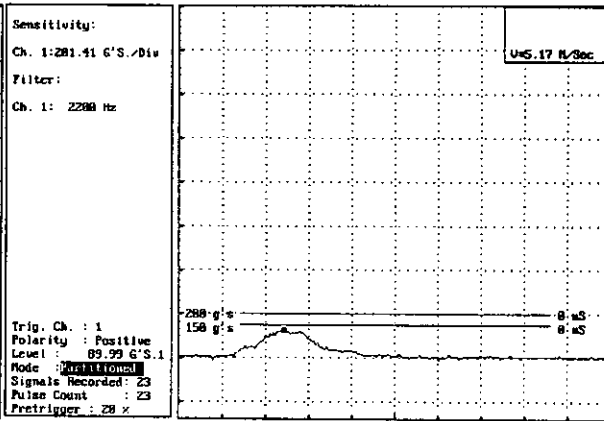
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IMP# / TEMP. 09-AMBIENT REPORT NO. 254326-013
LOCATION: LEFT HEMI IMPACT SAMPLE: CALIBER RHD200V XL

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:00 CLIENT: DOT/NHTSA
IMP# / TEMP. 10-AMBIENT REPORT NO. 254326-013
LOCATION: LEFT HEMI IMPACT SAMPLE: CALIBER RHD200V XL



CH	TIME	CLR AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
# 1	11.28 mS	95.39 G'S.	95.39 G'S.	0	0	4 mS



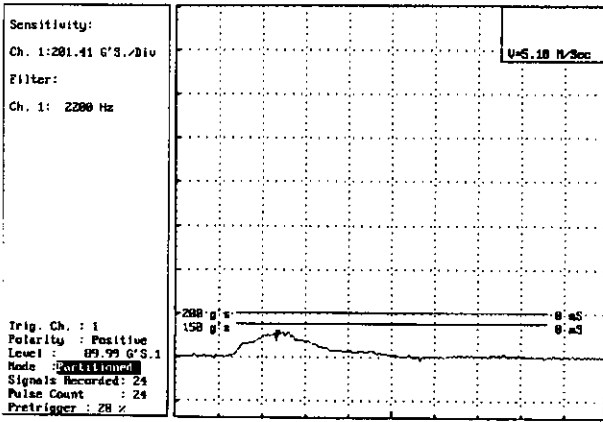
CH	TIME	CLR AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
# 1	9.60 mS	126.62 G'S.	126.62 G'S.	0	0	4 mS

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

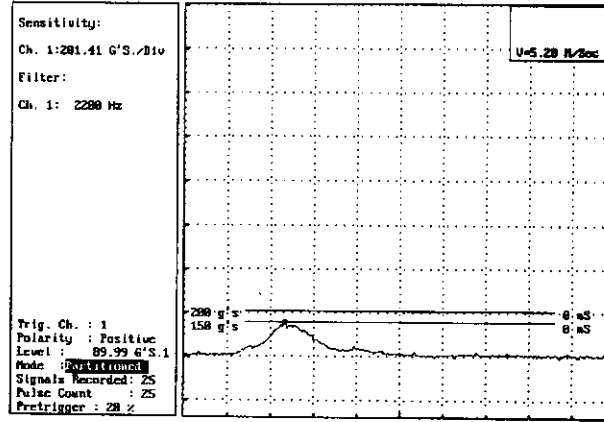
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LOCATION: LEFT HEMI IMPACT SAMPLE: CALIBER RHD200V XL

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:03 CLIENT: DOT/NHTSA
IMP# / TEMP. 12-LOW TEMP REPORT NO. 254326-013
LOCATION: LEFT HEMI IMPACT SAMPLE: CALIBER RHD200V XL



CH	TIME	CLR AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
# 1	9.44 mS	111.41 G'S.	111.41 G'S.	0	0	4 mS



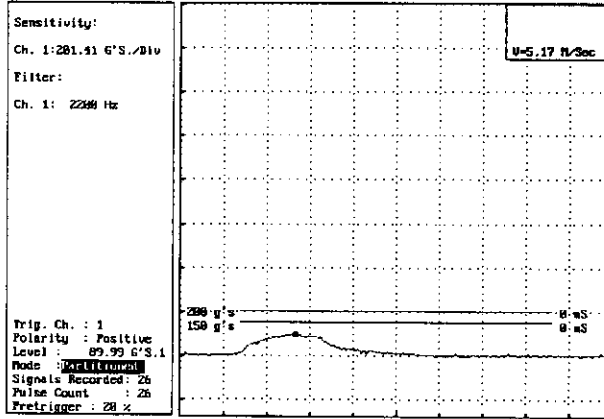
CH	TIME	CLR AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
# 1	9.20 mS	149.98 G'S.	149.98 G'S.	0	0	4 mS

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:04
IMP#: /TEMP. 13-HIGH TEMP
LOCATION: LEFT HEMI IMPACT

CLIENT: REPORT NO.
SAMPLE:

DOT/NHTSA 254326-013
CALIBER RHD200V XL



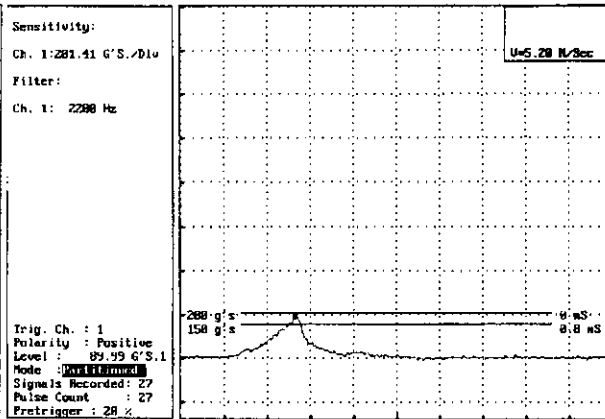
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Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:05
IMP#: /TEMP. 14-HIGH TEMP
LOCATION: LEFT HEMI IMPACT

CLIENT: REPORT NO.
SAMPLE:

DOT/NHTSA 254326-013
CALIBER RHD200V XL



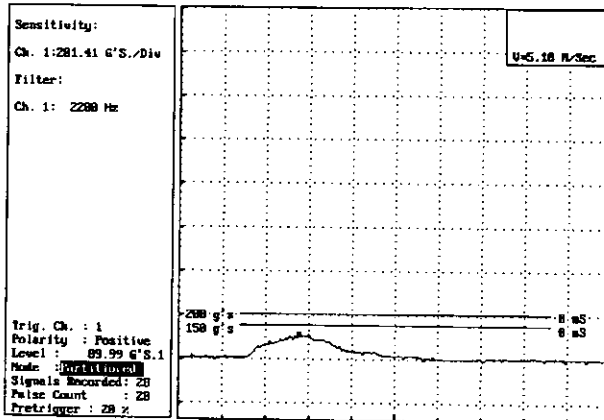
CH	TIME	CLIP AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
# 1	18.56 ms	187.99 G'S.	187.99 G'S.	0	0	4 ms

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:07
IMP#: /TEMP. 15-IMMERSED
LOCATION: LEFT HEMI IMPACT

CLIENT: REPORT NO.
SAMPLE:

DOT/NHTSA 254326-013
CALIBER RHD200V XL



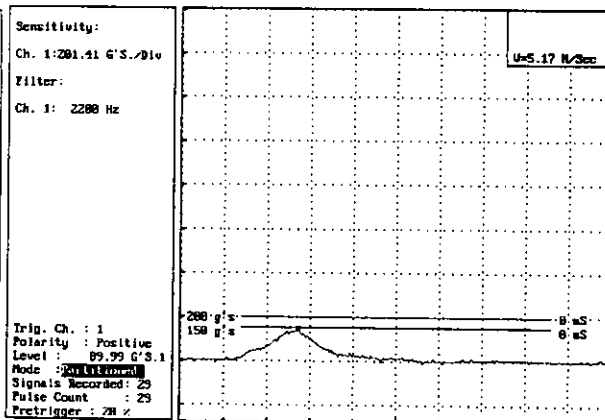
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Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:08
IMP#: /TEMP. 16-IMMERSED
LOCATION: LEFT HEMI IMPACT

CLIENT: REPORT NO.
SAMPLE:

DOT/NHTSA 254326-013
CALIBER RHD200V XL

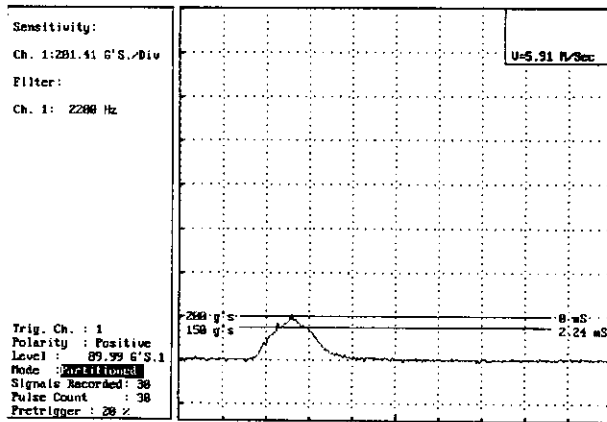


CH	TIME	CLIP AMP	PEAK AMP	1ST INT	2ND INT	TIME/DIV
# 1	18.00 ms	145.55 G'S.	145.55 G'S.	0	0	4 ms

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:15
IMP#:/TEMP. 17-AMBIENT
LOCATION: RIGHT FLAT IMPACT

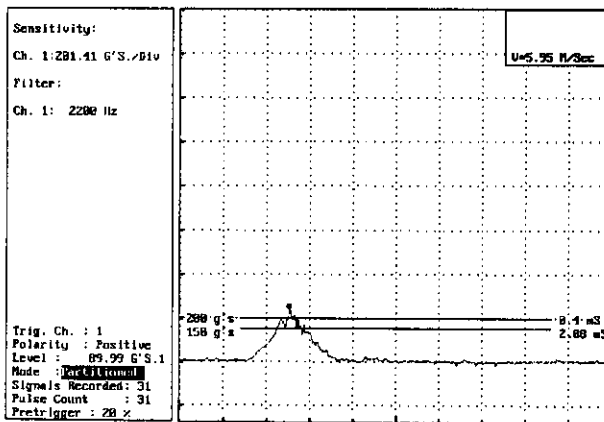
CLIENT: DOT/NHTSA
REPORT NO. 254326-013
SAMPLE: CALIBER RHD200V XL



Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:16
IMP#:/TEMP. 18-AMBIENT
LOCATION: RIGHT FLAT IMPACT

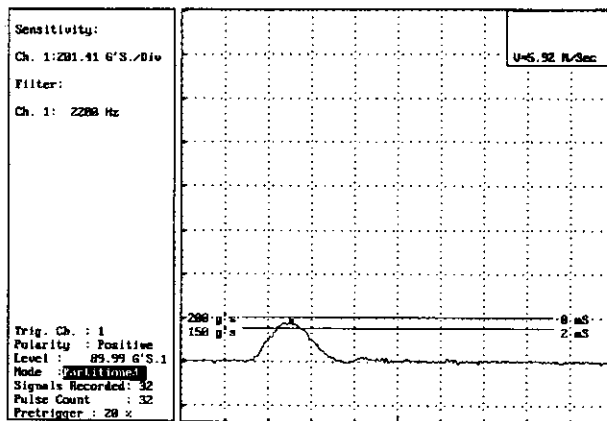
CLIENT: DOT/NHTSA
REPORT NO. 254326-013
SAMPLE: CALIBER RHD200V XL



Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:27
IMP#:/TEMP. 19-LOW TEMP
LOCATION: RIGHT FLAT IMPACT

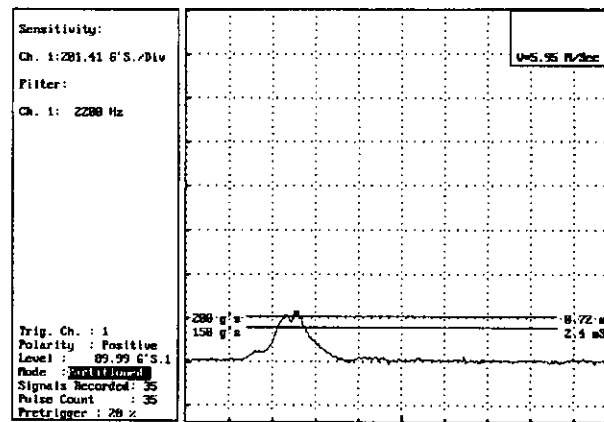
CLIENT: DOT/NHTSA
REPORT NO. 254326-013
SAMPLE: CALIBER RHD200V XL



Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

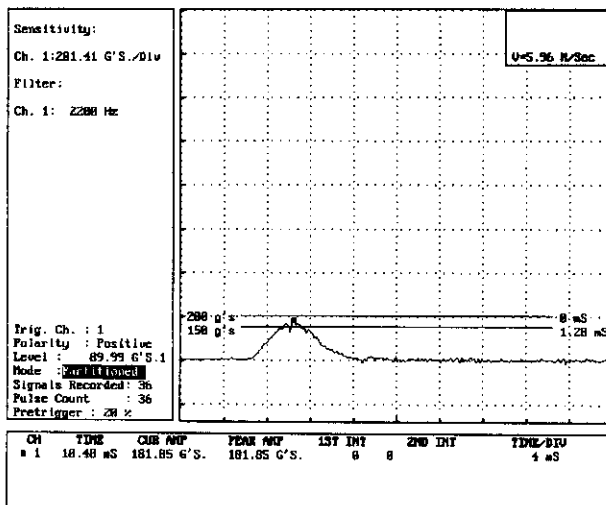
DATE / TIME Wed Jul 06 05 09:31
IMP#:/TEMP. 20-LOW TEMP
LOCATION: RIGHT FLAT IMPACT

CLIENT: DOT/NHTSA
REPORT NO. 254326-013
SAMPLE: CALIBER RHD200V XL



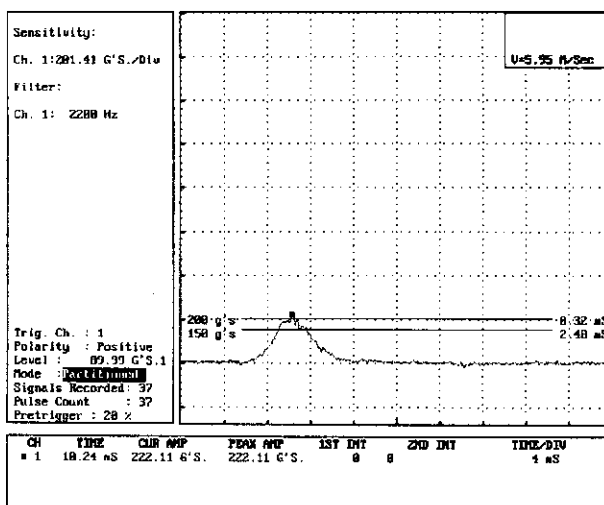
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GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:35 CLIENT: DOT/NHTSA
IMP#: /TEMP. 21-HIGH TEMP REPORT NO. 254326-013
LOCATION: RIGHT FLAT IMPACT SAMPLE: CALIBER RHD200V XL



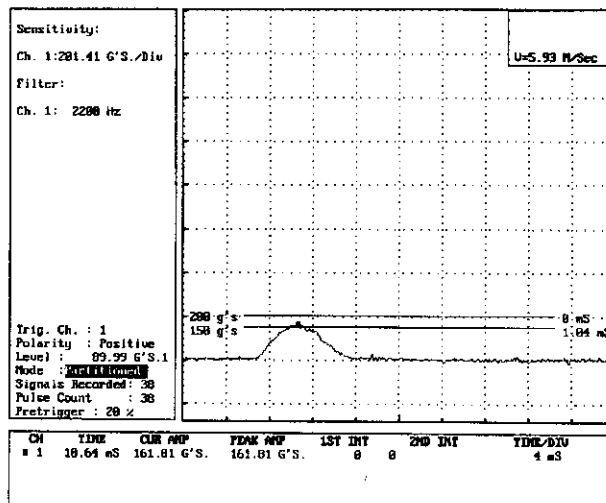
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GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:36 CLIENT: DOT/NHTSA
IMP#: /TEMP. 22-HIGH TEMP REPORT NO. 254326-013
LOCATION: RIGHT FLAT IMPACT SAMPLE: CALIBER RHD200V XL



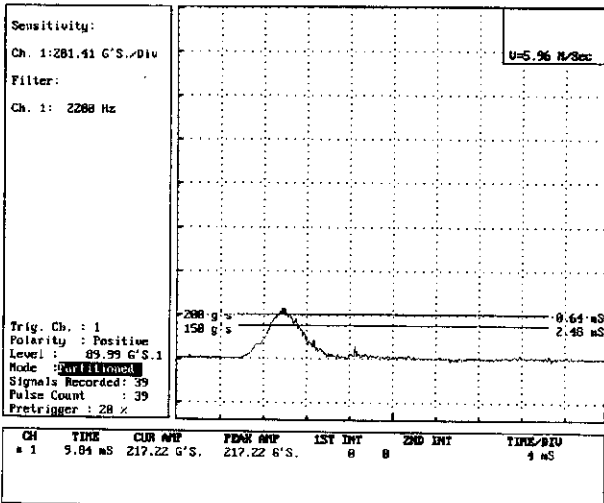
Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:37 CLIENT: DOT/NHTSA
IMP#: /TEMP. 23-IMMERSED REPORT NO. 254326-013
LOCATION: RIGHT FLAT IMPACT SAMPLE: CALIBER RHD200V XL



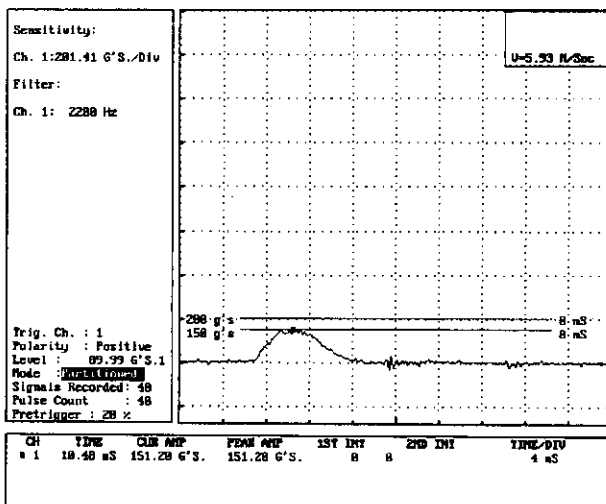
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GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 09:38 CLIENT: DOT/NHTSA
IMP#: /TEMP. 24-IMMERSED REPORT NO. 254326-013
LOCATION: RIGHT FLAT IMPACT SAMPLE: CALIBER RHD200V XL



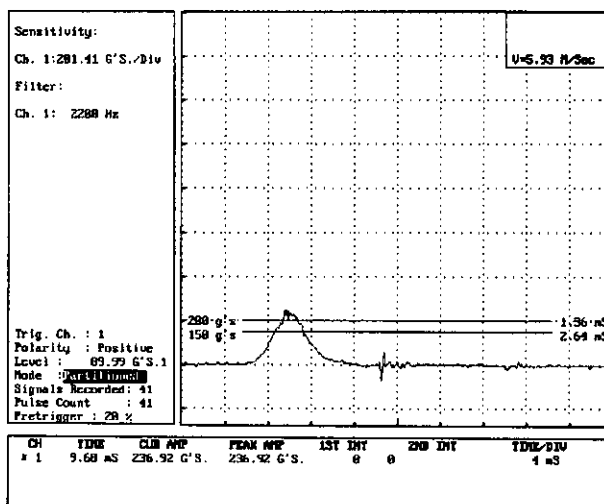
Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 10:05 CLIENT: DOT/NHTSA
 IMPF./TEMP. 25-AMBIENT REPORT NO. 254326-013
 LOCATION: REAR FLAT IMPACT SAMPLE: CALIBER RH0200V XL



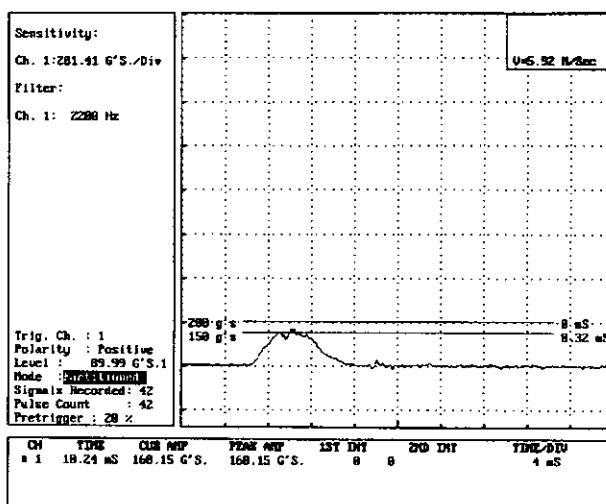
Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 10:06 CLIENT: DOT/NHTSA
 IMPF./TEMP. 26-AMBIENT REPORT NO. 254326-013
 LOCATION: REAR FLAT IMPACT SAMPLE: CALIBER RH0200V XL



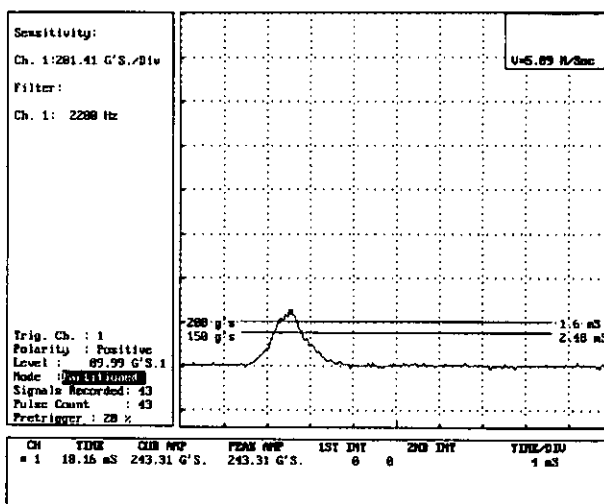
Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 10:08 CLIENT: DOT/NHTSA
 IMPF./TEMP. 27-LOW TEMP REPORT NO. 254326-013
 LOCATION: REAR FLAT IMPACT SAMPLE: CALIBER RH0200V XL



Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 10:09 CLIENT: DOT/NHTSA
 IMPF./TEMP. 28-LOW TEMP REPORT NO. 254326-013
 LOCATION: REAR FLAT IMPACT SAMPLE: CALIBER RH0200V XL

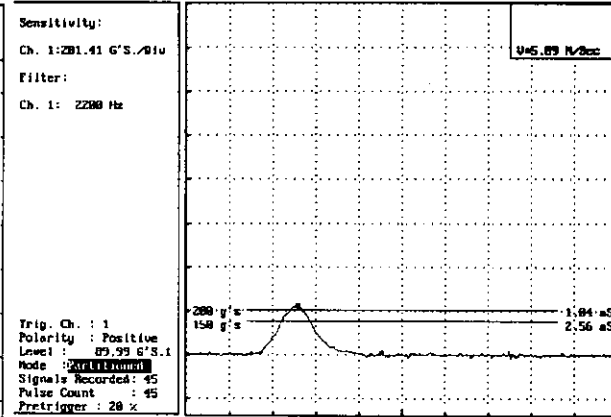
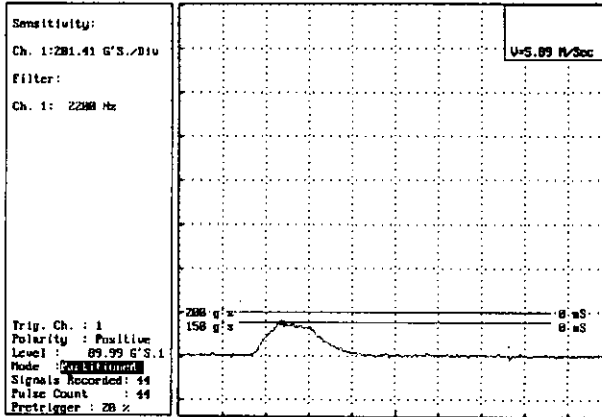


Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 10:10 CLIENT: DOT/NHTSA
IMP#: /TEMP. 29-HIGH TEMP REPORT NO. 254326-013
LOCATION: REAR FLAT IMPACT SAMPLE: CALIBER RH0200V XL

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 10:11 CLIENT: DOT/NHTSA
IMP#: /TEMP. 30-HIGH TEMP REPORT NO. 254326-013
LOCATION: REAR FLAT IMPACT SAMPLE: CALIBER RH0200V XL

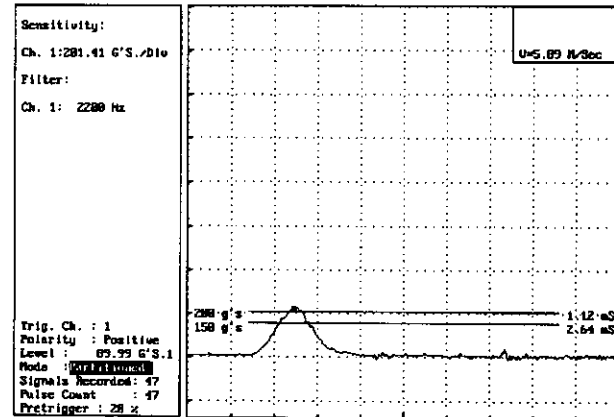
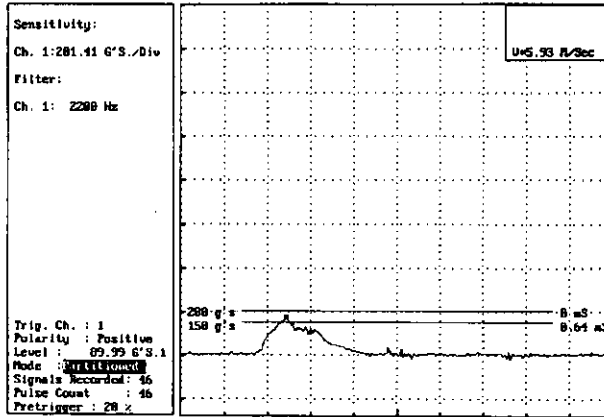


Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 10:13 CLIENT: DOT/NHTSA
IMP#: /TEMP. 31-IMMERSED REPORT NO. 254326-013
LOCATION: REAR FLAT IMPACT SAMPLE: CALIBER RH0200V XL

Waveform Test Report
GSI SYSTEMS, INC. CAT SYSTEM

DATE / TIME Wed Jul 06 05 10:14 CLIENT: DOT/NHTSA
IMP#: /TEMP. 32-IMMERSED REPORT NO. 254326-013
LOCATION: REAR FLAT IMPACT SAMPLE: CALIBER RH0200V XL



COMPLIANCE TEST DATA
FMVSS NO. 218 - MOTORCYCLE HELMETS

REPORT NO.: 218-UST-05-013

LAB REPORT NO.: 254326-013

DATE OF TEST: July 6, 2005

PENETRATION

Paragraph S5.2 and S7.2

WEIGHT OF STRIKER: 3 Kg (6 pounds, 10 ounces)

POINT OF STRIKER: Radius = 0.508cm (0.20 inch),, included angle of 60° + 1.0°, - 0.0, hardness minimum of 60 Rockwell "C" Scale and a cone height of not less than 3.81cm (1.5" inches).

HEIGHT OF FALL: 300cm, + 0.0cm, -3.05cm (118.1 inches, +0.0 inches, 1.2 inches), measured from the tip of the striker point to the outer surface of the mounted protective headgear.

FAILURE CRITERION: When tested, the striker shall not contact the surface of the test headform.

<u>TEST</u>	<u>HELMET</u>	<u>PASS</u>	<u>FAIL</u>	<u>CONDITIONS</u>
1	A	P		Low Temp.
2	A	P		Low Temp.
3	B	P		High Temp.
4	B	P		High Temp.
5	C	P		Immersed
6	C	P		Immersed
7	D	P		Ambient
8	D	P		Ambient

COMMENTS:

RECORDED BY: Edwin Rivera

APPROVED BY: John Lomash

**COMPLIANCE TEST DATA
FMVSS NO. 218 - MOTORCYCLE HELMETS**

REPORT NO.: 218-UST-05-013

LAB REPORT NO.: 254326-013

DATE OF TEST: July 6, 2005

Paragraph S5.3 and S7.3

AMBIENT TEMPERATURE: 23 °C, (72 °F)

AMBIENT HUMIDITY: 50 %

REQUIREMENTS:

READING	APPLIED LOAD
INITIAL	22.68 kg, + 4.5 kg, - 0 kg (50.0 lbs, + 10 lbs, - 0 lbs)
FINAL	131.5 kg, + 0.0 kg, - 2.3 kg (290 lbs, + 0.0 lbs, - 5.0 lbs)

ELONGATION NOT TO EXCEED 25.4 mm (1.0 INCH) AFTER LOAD INCREASE

HELMET	CONDITIONS	Elongation mm (in)
A	Low Temperature	15.772mm (0.62")
B	High Temperature	16.430mm (0.65")
C	Immersed	15.294mm (0.60")
D	Ambient	16.851mm (0.66")

COMMENTS:

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 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
BROW OPENING	> 2.54cm (1 inch)	Pass

RECORDED BY: Edwin Rivera

APPROVED BY: John Lomash

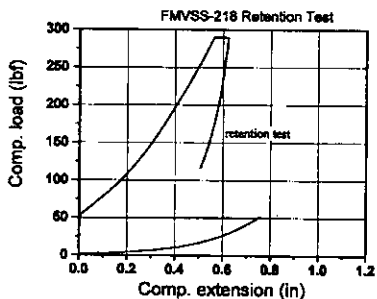
SGS

Company: DOT/NHTSA Name: CALIBER RHD200V SZ: XL
 Lab name: STME Number of specimens: 1
 Operator ID: E.R. Temperature: 23 C
 Test date: 7/6/2005 Humidity: 50 %
 Condition: A-LOW TEMP. -10°C (14°F) Crosshead Speed: 1.2 in/min
 JOB# 254326-013

Results

	Max Load (kgf)	Max Load (lbf)	Extension @ Max Load (mm)	Extension @ Max Load (in)	Pass/Fail
1	131.53	290.01	15.772	0.62	PASS

Curves



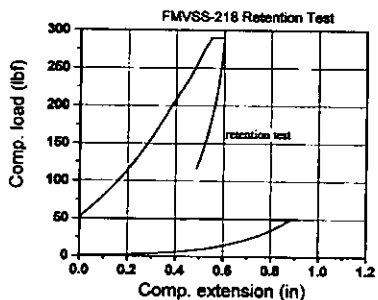
SGS

Company: DOT/NHTSA Name: CALIBER RHD200V SZ: XL
 Lab name: STME Number of specimens: 1
 Operator ID: E.R. Temperature: 23 C
 Test date: 7/6/2005 Humidity: 50 %
 Condition: C-WATER TEMP. 25°C (77°F) Crosshead Speed: 1.2 in/min
 JOB# 254326-013

Results

	Max Load (kgf)	Max Load (lbf)	Extension @ Max Load (mm)	Extension @ Max Load (in)	Pass/Fail
1	131.54	289.99	15.294	0.60	PASS

Curves



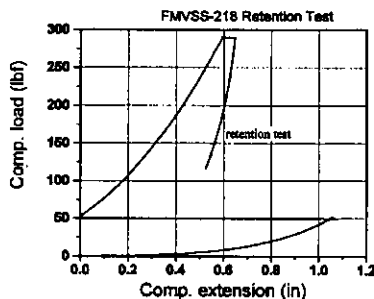
SGS

Company: DOT/NHTSA Name: CALIBER RHD200V SZ: XL
 Lab name: STME Number of specimens: 1
 Operator ID: E.R. Temperature: 23 C
 Test date: 7/6/2005 Humidity: 50 %
 Condition: B-HIGH TEMP. 50°C (122°F) Crosshead Speed: 1.2 in/min
 JOB# 254326-013

Results

	Max Load (kgf)	Max Load (lbf)	Extension @ Max Load (mm)	Extension @ Max Load (in)	Pass/Fail
1	131.54	290.00	16.430	0.65	PASS

Curves



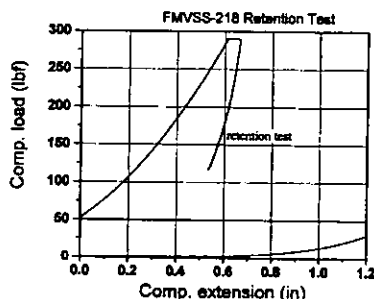
SGS

Company: DOT/NHTSA Name: CALIBER RHD200V SZ: XL
 Lab name: STME Number of specimens: 1
 Operator ID: E.R. Temperature: 23 C
 Test date: 7/6/2005 Humidity: 50 %
 Condition: D-AMBIENT TEMP. 21°C (70°F) Crosshead Speed: 1.2 in/min
 JOB# 254326-013

Results

	Max Load (kgf)	Max Load (lbf)	Extension @ Max Load (mm)	Extension @ Max Load (in)	Pass/Fail
1	131.54	290.01	16.851	0.66	PASS

Curves



COMPLIANCE TEST DATA
FMVSS NO. 218 - MOTORCYCLE HELMETS

REPORT NO.: 218-UST-05-013

LAB REPORT NO.: 254326-013

DATE OF TEST: July 6, 2005

Paragraph S5.5

REQUIREMENTS

PROJECTION TYPE	AVAILABILITY	HEIGHT, mm / IN
Internal-Rigid	None	0.0mm / 0.00 inches
External-Rigid	Operational	5 mm / 0.20 inches Maximum

TEST RESULTS

PROJECTION TYPE	AVAILABILITY	HEIGHT, mm / IN
Internal-Rigid	None	---
External-Rigid	None	---

COMMENTS:

RECORDED BY: Edwin Rivera

APPROVED BY: John Lomash

COMPLIANCE TEST DATA
FMVSS NO. 218 - MOTORCYCLE HELMETS

REPORT NO.: 218-UST-05-013

LAB REPORT NO.: 254326-013

DATE OF TEST: July 6, 2005

Paragraph S5.6

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 other permanent part, with the following:

		PASS	FAIL
A.	Manufacturer's name or identification	<u>X</u>	
B.	Precise model designation	<u>X</u>	
C.	Size	<u>X</u>	
D.	Month and year of manufacture. This may be spelled out (e.g., June, 1974) or expressed in numerals (6/74)	<u>X</u>	
E.	The symbol DOT. Constituting the manufacturer's certification that the helmet conforms to the Applicable Federal Motor Vehicle Safety Standards. This symbol shall appear on the outer surface, in a color that contrasts with the background.	<u>X</u>	
F.	Instruction to the purchaser as follows—	<u>X</u>	
(1)	Shell and liner construction (identify type(s) of materials).	<u>X</u>	
(2)	Helmet can be seriously damaged by some common substances without damage being visible to the user.	<u>X</u>	
(3)	Apply only the following— Recommended cleaning agents, paints, adhesives, etc., as appropriate.	<u>X</u>	
(4)	Make no modifications.	<u>X</u>	
	Fasten helmet securely.	<u>X</u>	
	If helmet experiences a severe blow, return it to the manufacturer for inspection or destroy and replace it.	<u>X</u>	

COMMENTS:

RECORDED BY: Edwin Rivera

APPROVED BY: John Lomash

APPENDIX A
INTERPRETATIONS OR DEVIATIONS FROM FMVSS NO. 218
FROM FMVSS NO. 218

INTERPRETATIONS OR DEVIATIONS FROM FMVSS NO. 218

NONE

APPENDIX B

TEST EQUIPMENT LIST
AND
CALIBRATION INFORMATION

TEST EQUIPMENT

<u>Item</u>	<u>Manufacturer</u>	<u>Model</u>	<u>S/N</u>	<u>Cal. Period</u>	<u>Date of Last Cal.</u>	<u>Accuracy</u>	<u>Remarks</u>
1. Marker Stand	L.S. Starrett	----	----	N/A	N/A	N/A	Purchased 1995
2. Reference Headform	Bell	----	----	N/A	N/A	N/A	Purchased 1995
3. 4.5kg (10 lb) Weight	----	----	----	Verified	7/03	± .05 kg ± 0.1 lb	Purchased 1995
4. Steel Ruler	L.S. Starrett	----	----	----	----	mm	Purchased 2005
5. Tespac	U.S. Testing Co.	800	N/A	N/A	N/A	N/A	Monorail Assembly Purchased 1980 Refurbished 2002
7. Head Forms (Small, Medium & Large)	U.S. Testing Co.	A, C, D	----	----	----	----	Purchased 1998
9. Velocity Sensor	G.H.I.	VSD1	011101	1 Yr.	7/04	N/A	Purchased 2001
11. MEP Pad	U.S. Testing Co.	1 in. Blue	----	N/A	N/A	N/A	Purchased 1999

TEST EQUIPMENT

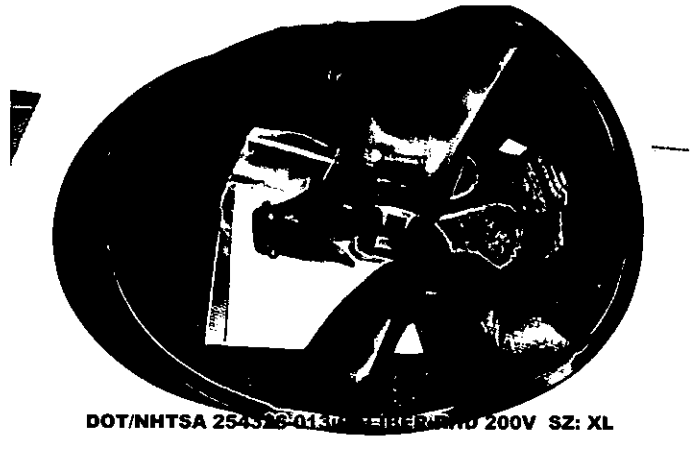
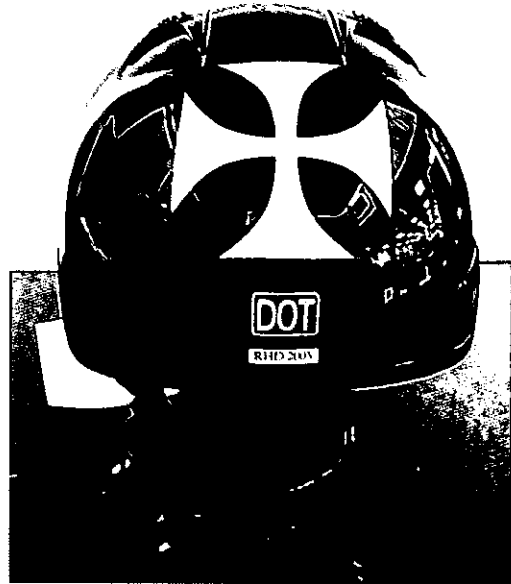
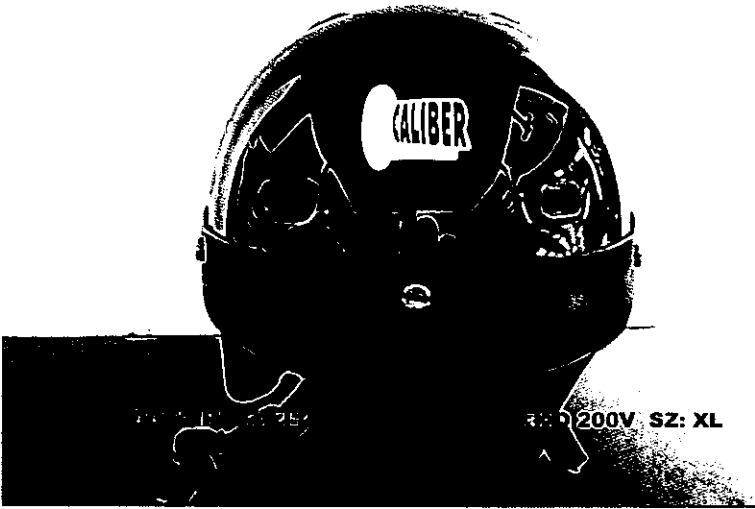
<u>Item</u>	<u>Manufacturer</u>	<u>Model</u>	<u>S/N</u>	<u>Cal. Period</u>	<u>Date of Last Cal.</u>	<u>Accuracy</u>	<u>Remarks</u>
12. Camera	Kodak	DX-4900	KCKAV23 203	N/A	N/A	N/A	Purchased 2003
13. Computer	G.H.I. CAT Sys	Helmet-4	C-4116----	1 Yr.	7/04	±2%	Purchased 2001
14. Printer	HP Deskjet	840CD	----	N/A	N/A	N/A	Purchased 2001
15. Hemi Anvil	U.S. Testing Co.	----	----	----	----	----	Purchased 1999
16. Flat Anvil	U.S. Testing Co.	----	----	----	----	----	Purchased 1999
17. Accelerometer	Kistler	8604C5000	C60821	2 Yr.	11/04	±1%	Purchased 1998
18. Penetration Head Form	U.S. Testing Co.	----	----	----	----	N/A	Purchased 1995
19. Penetration Striker	U.S. Testing Co.	218	----	Verified	1/04	N/A	6 lb, 10 oz. Wt. 60° included angle, cone ht. 1.5" 60RC Purchased 1995
20. Universal Tester	Baldwin-Emery	SR-4	50-SR4- 31	1 Yr.	6/05	±1%	Purchased 1970
20a. Universal Tester	Instron	5585	SI-16242	1 Yr.	4/05	±1/4%	Purchased 2003

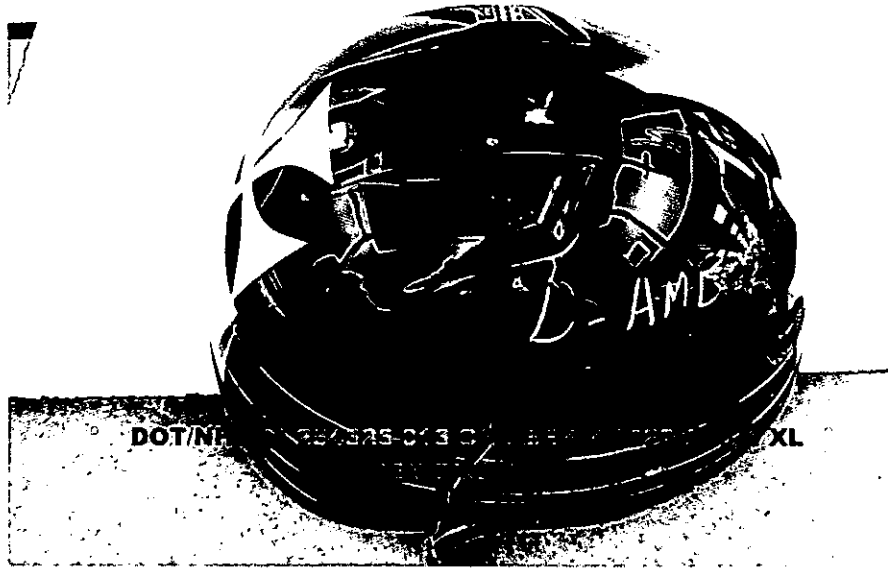
TEST EQUIPMENT

<u>Item</u>	<u>Manufacturer</u>	<u>Model</u>	<u>S/N</u>	<u>Cal. Period</u>	<u>Date of Last Cal.</u>	<u>Accuracy</u>	<u>Remarks</u>
21. Retention Head Form	---	---	---	---	---	---	Purchased 1995
21a. Retention Test Frame	Instron	---	SI-16353	N/A	---	---	Purchased 2004
22. Linear Deflectometer	Maurey	1326-2-102	---	Prior to use	---	±1%	Purchased 1999
22a. Linear Transducer	Omega	LD 300-25	M922068A 402-04	1 Yr.	6/05	±1/4%	Purchased 2004
23. Strip Chart Recorder	Houston Instrument	A5112	5/6448- 406	1 Yr.	9/04	±1%	Purchased 1990
24. Protractor Stand	U.S. Testing Co.	---	---	---	---	---	Purchased 1990
25. Oven	Despatch	LDB1-69	120943	N/A	---	---	Purchased 1990
26. Freezer	VWR	A450720-A	TW- 50018H	N/A	---	---	Purchased 1995
27. Temperature Recorder	Parlow	MRC7000	N/A	1 Yr.	6/05	±1%	Purchased 1995
28. Temp / RH Recorder	Honeywell	612X2L-FH- 11-111-77	N8004568 005	1 Yr.	6/05	±1 div	Purchased 1985

APPENDIX C
PHOTOGRAPHS

DOT/NHTSA 254326-013 CALIBER RHD 200V SZ: XL





CALIBER
HELMETS

XL
61-62

RHD 200V

NO HELMET CAN PROTECT THE WEARER AGAINST ALL POSSIBLE OR FORESEEABLE IMPACTS. HOWEVER FOR MAXIMUM PROTECTION UNDER THIS STANDARD, THE HELMET MUST BE PROPERLY FIT AND ALL RETENTION STRAPS MUST BE SECURELY FASTENED.

THE HELMET CAN BE SERIOUSLY DAMAGED BY SUBSTANCES SUCH AS PETROL, PAINT, ADHESIVE OR CLEANSING AGENTS WITHOUT DAMAGE BEING VISIBLE TO THE USER. CLEAN THE HELMET WITH WARM WATER AND MILD HAND SOAP.

MAKE NO MODIFICATIONS

IF THE HELMET RECEIVES A SEVERE BLOW, RETURN IT TO THE MANUFACTURER FOR INSPECTION OR DESTROY AND REPLACE IT

THE SHELL IS CONSTRUCTED OF ABS PLASTIC.
LINER IS CONSTRUCTED OF EXPANDED POLYSTYRENE.

MADE IN CHINA

XL

10 2004
MADE IN RODIA CHINA
INSPECTOR A B C

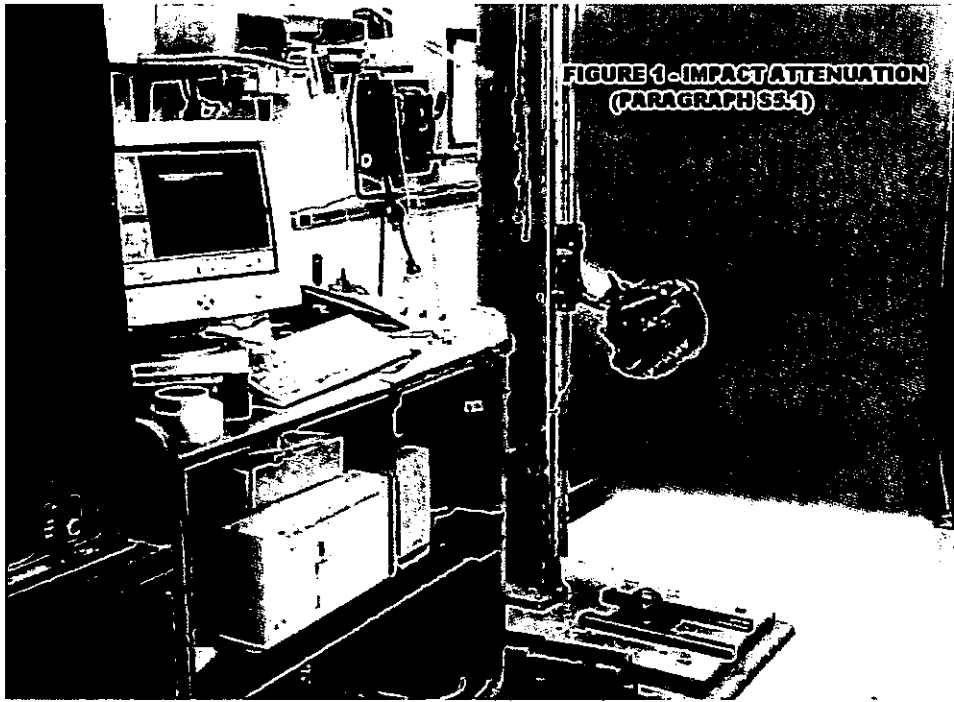


Figure 1 - Impact Attenuation
(Paragraph S5.1)

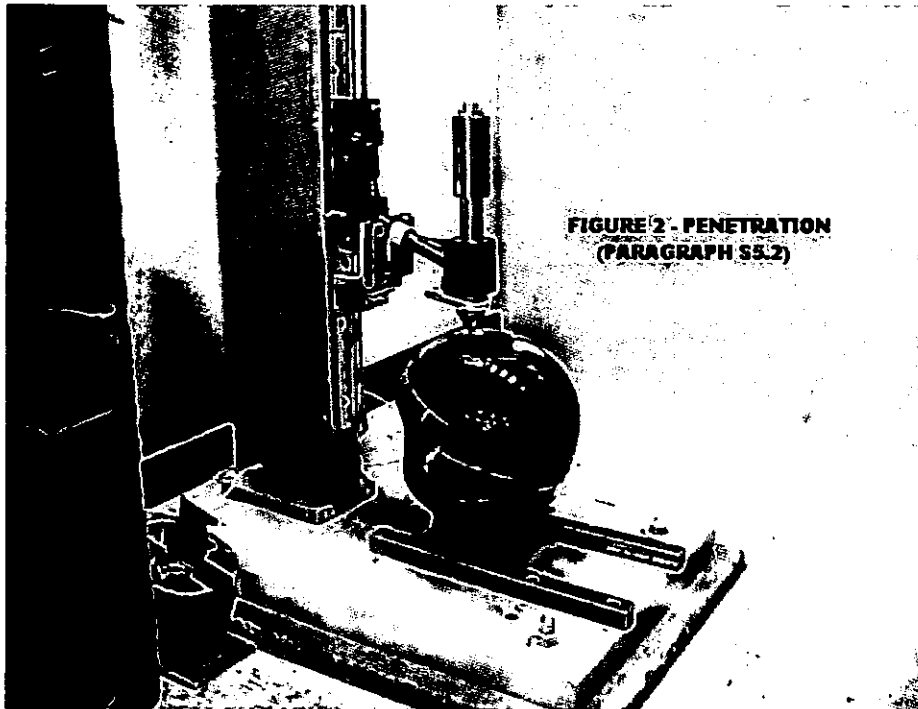


Figure 2 - Penetration
(Paragraph S5.2)

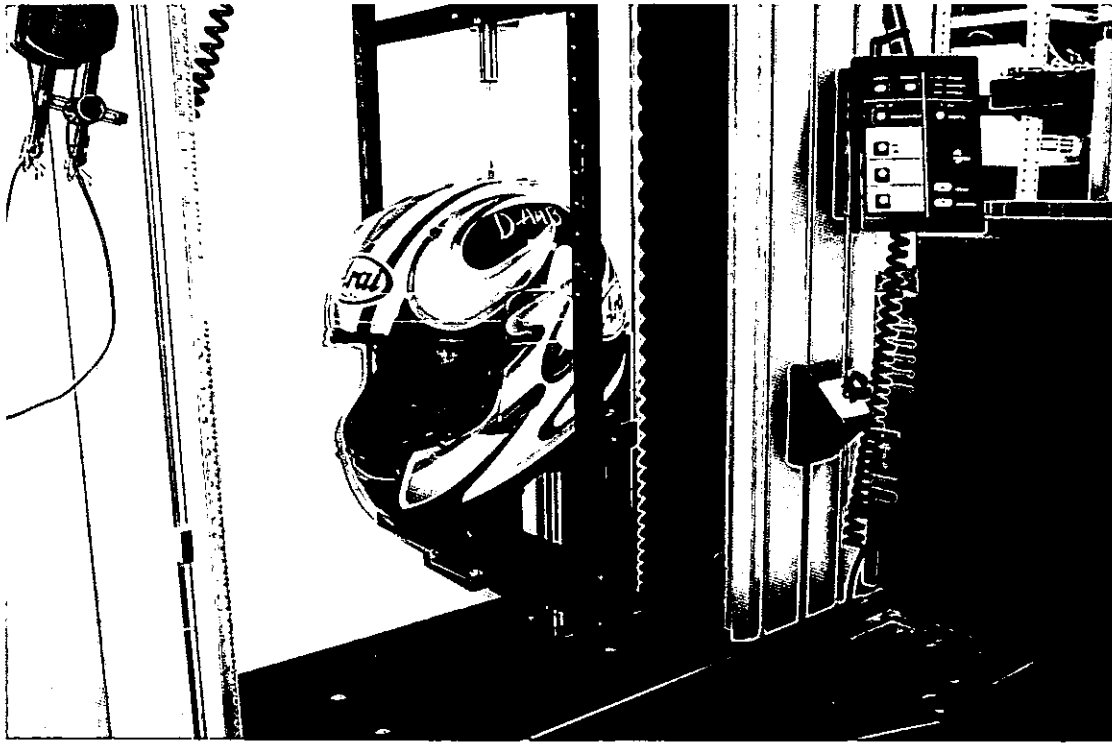


Fig. 3 Retention System
(Paragraph S5.3)



Fig. 4 Peripheral Vision
(Paragraph S5.4)