

SAFETY COMPLIANCE TESTING FOR FMVSS 201U
Occupant Protection In Interior Impact
Upper Interior Head Impact Protection

NISSAN MOTOR CO., LTD.
2004 NISSAN TITAN KING CAB
NHTSA No. C45206

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083



Test Dates: April 6-7, 2004
Report Date: April 8, 2004

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF PLANNING, EVALUATION AND BUDGET
400 7TH STREET, S.W., ROOM 5208
WASHINGTON, D.C. 20590

1

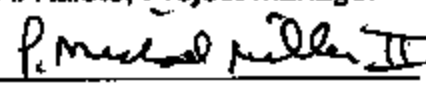
This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By: _____


David G. Gotwals, Project Engineer


Helen A. Kaleto, Project Manager

Approved By: _____

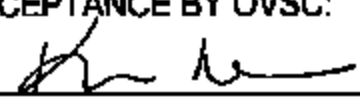


Approval Date: _____

6/23/04

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: _____



Acceptance Date: _____

7/9/2004

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 201U-MGA-04-05		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 201U Compliance Testing of a 2004 Nissan Titan King Cab, NHTSA No. C45206				5. Report Date April 8, 2004	
				6. Performing Organization Code MGA	
7. Author(s) Helen A. Kaleto, Project Manager David G. Gotwals, Project Engineer				8. Performing Organization Report No. 201U-MGA-04-05	
9. Performing Organization Name and Address MGA Research Corporation 446 Executive Drive Troy, Michigan 48063				10. Work Unit No.	
				11. Contract or Grant No. DTNH22-99-C-11005	
12. Sponsoring Agency Name and Address U.S. Department Of Transportation National Highway Traffic Safety Administration Safety Assurance Office Of Vehicle Safety Compliance 400 7 th Street, S.W. Room 8111 (NVS-220) Washington, D.C. 20590				13. Type of Report and Period Covered Final Test Report	
				14. Sponsoring Agency Code NVS-220	
15. Supplementary Notes					
16. Abstract A compliance test was conducted on the subject 2004 Nissan Titan King Cab, NHTSA No. C45206, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-201U-01 for the determination of FMVSS 201U compliance. The testing was conducted at the MGA Research Corporation in Troy, Michigan on April 6-7, 2004. Test failures identified were as follows: RP2 (Right) The data recorded seems to indicate that the 2004 Nissan Titan King Cab tested does not appear to comply with the requirements for FMVSS 201U which were set forth by the National Highway Traffic Safety Administration.					
17. Key Words Compliance Testing Safety Engineering FMVSS 201U 2004 Nissan Titan				18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division, Mail Code: NPO-230 400 Seventh Street, SW Washington, D.C. 20590 Telephone No. (202) 366-4948	
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 125	
				22. Price N/A	

TABLE OF CONTENTS

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
1.0	PURPOSE OF COMPLIANCE TEST	1-1
2.0	COMPLIANCE DATA SUMMARY	2-1
3.0	TEST DATA (Including Acceleration and Velocity Plots)	3-1
4.0	TEST EQUIPMENT LIST AND CALIBRATION INFORMATION	4-1
5.0	PHOTOGRAPHS	5-1
6.0	NOTICE OF TEST FAILURE(S)	6-1
APPENDIX A	TEMPERATURE TRACE	A-1

LIST OF TABLES

<u>TABLE</u>	<u>DESCRIPTION</u>	<u>PAGE NO</u>
2-1	SUMMARY TABLE OF TEST RESULTS	2-2
2-2	GENERAL TEST AND VEHICLE PARAMETER DATA	2-4
2-3	HORIZONTAL IMPACT ANGLE RANGE FOR A- AND B-PILLARS/DOOR FRAMES	2-8
2-4	VERTICAL IMPACT ANGLE RANGES	2-9
2-5	TARGET MEASUREMENTS	2-11
2-6	SUMMARY OF TARGETING RESULTS	2-14
4-1	LIST OF ITEMS USED	4-1
4-2	FMH CALIBRATION SUMMARY	4-2

LIST OF TABLES

<u>TABLE</u>	<u>DESCRIPTION</u>	<u>PAGE NO</u>
2-1	SUMMARY TABLE OF TEST RESULTS	2-2
2-2	GENERAL TEST AND VEHICLE PARAMETER DATA	2-4
2-3	HORIZONTAL IMPACT ANGLE RANGE FOR A- AND B-PILLARS	2-7
2-4	VERTICAL IMPACT ANGLE RANGES	2-8
2-5	TARGET MEASUREMENTS	2-10
2-8	SUMMARY OF TARGETING RESULTS	2-13
4-1	LIST OF ITEMS USED	4-1
4-2	FMH CALIBRATION SUMMARY	4-2

1.0 PURPOSE OF COMPLIANCE TEST

The purpose of this head impact compliance testing was to determine whether the subject vehicle, a 2004 Nissan Titan King Cab, meets the performance requirements of FMVSS 201U, Occupant Protection in Interior Impact - Upper Interior Head Impact Protection.

Tests were conducted during April 6-7, 2004 on a 2004 Nissan Titan King Cab, manufactured by Nissan Motor Co., Ltd. (Nissan).

All tests were conducted in accordance with the U. S. Department of Transportation, National Highway Traffic Safety Administration's Laboratory Test Procedure TP-201U-01 dated April 3, 1998 and the corresponding MGA Research Corporation's FMVSS 201U procedure number MGATP201U_FRAME#2 dated March 20, 2003.

All tests were conducted at MGA Research Corporation in Troy, Michigan and were performed by MGA engineers and technicians. The FMVSS 201U Impactor test machine was used to conduct the testing. Target locations were determined by using a Coordinate Measurement Machine in conjunction with the MGA EZ-Target™ program and MGA procedure MGATP201U_Test Series dated March 20, 2003.

2.0 COMPLIANCE TEST DATA SUMMARY

The 2004 Nissan Titan was equipped with A, DF, and Rear-pillars, a grab handle above the front passenger door, an adjustable seat belt anchor on each door frame, a fixed seat belt anchor on each Rear-pillar, an upper roof front center console, and hanger hooks on each rear side rail.

Upon completion of targetting the test vehicle, ten (10) targets were chosen to be impacted based upon engineering judgment and certification test data provided by Nissan. Targets were chosen which appeared most likely to give high HIC(d) values. The ten (10) targets chosen were:

AP1	SR2-A	UR1	UR4
AP3	RH	UR2	
DF3	RP2	UR3	

The 2004 Nissan Titan tested does not appear to comply with the performance criteria for FMVSS 201U. The HIC(d) measured using the Part 572L (Free Motion Headform) was above 1000 for Target RP2 (Right), but was below 1000 for all other tested components.

TABLE 2-1
SUMMARY TABLE OF TEST RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 2004 Nissan Titan King Cab

VEH. NHTSA NO.: C45206 VIN: 1N6AA06A74N508862 COLOR: Silver

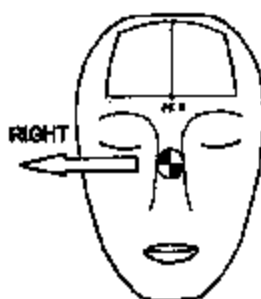
VEH. BUILD DATE: December, 2003 TEST DATES: April 6-7, 2004

TEST LABORATORY: MGA Research Corporation

OBSERVERS: David Gotwals, Nicholas Brzuch, Darrel Steger, George Baker, Scott Kreiger

TARGET	VEHICLE SIDE	HORIZONTAL ANGLE (deg)	VERTICAL ANGLE (deg)	VELOCITY (kph)	HIC(d)	FMH HIC	IMPACT ON FMH (mm)	
							Above	Left/Right
AP1	Right	113	24	18.4	398	305	18	18 Right
AP3	Right	164	49	18.7	219	69	8	5 Left
DF3	Right	85	-10	23.8	443	366	20	8 Left
SR2-A	Right	90	50	18.9	531	483	13	8 Left
RH	Right	0	50	23.3	548	506	7	7 Left
RP2	Right	90	0	23.8	1042	1160	13	3 Right
UR1	Right	90	50	23.5	645	634	26	3 Left
UR2	Right	90	50	23.6	658	651	26	3 Left
UR3	Right	90	40	23.5	673	671	48	8 Right
UR4	Right	90	45	23.4	470	402	35	2 Left

Above and left/right refers to the position relative to reference pt. 0 where the target made contact with the Free Motion Headform. See the diagram below for details.



POST TEST COMMENTS:

The following description lists any post-test damage or other test observations for each target.

AP3 Right: The grab handle broke off during the impact.

RP2 Right: Apparent test failure.

No damage was observed for any other targets.

REMARKS:

The targets listed were impacted in the following order:

Right: DF3, UR3, UR2, AP3, AP1, UR1, SR2-A, UR4, RP2, RH

Left: None

Target DF3 was an indicate impact.

The following targets, located within the airbag zone, were impacted at the reduced velocity (19 kph).

Right: AP1, AP3, SR2-A

The 150 mm rule was observed for targets horizontal to each other and the 200 mm rule was observed for vertical components.

RECORDED BY: David G. Gotwals

DATE: April 8, 2004

APPROVED BY: Helen A. Kaleta

TABLE 2-2
GENERAL TEST AND VEHICLE PARAMETER DATA

VEH. MOD YR/MAKE/MODEL/BODY: 2004 Nissan Titan King Cab

VEH. NHTSA NO.: C45206 VIN: 1N6AA06A74N508862 COLOR: Silver

VEH. BUILD DATE: December, 2003 TEST DATES: April 6-7, 2004

TEST LABORATORY: MGA Research Corporation

OBSERVERS: David Gotwals, Nicholas Brzuch, Darrel Stager, George Baker, Scott Kreiger

INTERIOR TRIM INFORMATION: A, DF, and Rear-pillars, a grab handle above the front passenger door, an adjustable seat belt anchor on each door frame, a fixed seat belt anchor on each Rear-pillar, an upper roof front center console, and hanger hooks on each rear side rail.

SUNROOF INFORMATION:

Installed: Yes X No
Operation: Electric Manual

ROLL-BAR INFORMATION:

Installed: Yes X No
Padded: Yes X No
Braces: Yes X No

GENERAL INFORMATION:

Date Received: 2/20/04; Odometer Reading: 135 miles

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Nissan Motor Co., Ltd.

Date of Manufacture: December, 2003; VIN: 1N6AA06A74N508862

GVWR: 6400 lb GAWR FRONT: 3300 lb

GAWR REAR: 3800 lb

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 240 kPa REAR: 240 kPaRecommended Tire Size: P265/70R18Recommended Cold Tire Pressure: P265/70R18FRONT: 240 kPa REAR: 240 kPaSize of Tire on Test Vehicle: P265/70R18Type of Spare Tire: P265/70R18; Space Saver: ; Standard X

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench ; Bucket X; Split Bench Number of Occupants: Front 2; Rear 3; TOTAL 5VEHICLE CAPACITY WEIGHT (VCW) = 548 kgNo. of Occupants x 68 kg = 340 kgRated Cargo/Luggage Weight (RCLW) = 208 kg (difference)Maximum Cargo/Luggage Weight (RCLW) = 136 kg

WEIGHT OF TEST VEHICLE AS DELIVERED AT LABORATORY: (with maximum fluids)

Right Front = 618.0 kg Right Rear = 532.0 kgLeft Front = 625.5 kg Left Rear = 527.5 kgTOTAL FRONT = 1243.5 kg TOTAL REAR = 1059.5 kg% Total Weight = 54.0 % % Total Weight = 46.0 %TOTAL DELIVERED WEIGHT = 2303.0 kg

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight = 2303.0 kgRated Cargo/Luggage Weight = 136.0 kgTarget Test Weight = 2439.0 kg

WEIGHT OF TEST VEHICLE:

Right Front =	<u>617.0</u> kg	Right Rear =	<u>600.0</u> kg
Left Front =	<u>623.0</u> kg	Left Rear =	<u>597.0</u> kg
TOTAL FRONT =	<u>1240.0</u> kg	TOTAL REAR =	<u>1197.0</u> kg
% Total Weight =	<u>50.9</u> %	% Total Weight =	<u>49.1</u> %
TOTAL TEST WEIGHT = <u>2437.0</u> kg			
Weight of ballast secured in vehicle's cargo area = <u>136.0</u> kg			

TEST VEHICLE ATTITUDE:

AS DELIVERED: Right Front 931.0 mm; Left Front 925.0 mm;
 Right Rear 985.0 mm; Left Rear 982.0 mm;
 Pitch Angle at Right Door Sill = 1.2 Rear higher
 Pitch Angle at Left Door Sill = 1.1 Rear higher
 Roll Angle at Front Bumper = 0.4 Right-side higher
 Roll Angle at Rear Bumper = 0.1 Right-side higher

FULLY LOADED: Right Front 943.0 mm; Left Front 945.0 mm;
 Right Rear 965.0 mm; Left Rear 962.0 mm;
 Pitch Angle at Right Door Sill = 0.9 Rear higher
 Pitch Angle at Left Door Sill = 0.9 Rear higher
 Roll Angle at Front Bumper = 0.4 Right-side higher
 Roll Angle at Rear Bumper = 0.2 Right-side higher

AS TARGETED: Right Front 1034.0 mm; Left Front 1038.0 mm;
 Right Rear 1070.0 mm; Left Rear 1081.0 mm;
 Pitch Angle at Right Door Sill = 1.2 Rear higher
 Pitch Angle at Left Door Sill = 1.1 Rear higher
 Roll Angle at Front Bumper = 0.4 Right-side higher
 Roll Angle at Rear Bumper = 0.2 Right-side higher

AS TESTED ON RIGHT SIDE: (only the right-side was tested)

Pitch Angle at Right Door Sill = 1.2 Rear higher
 Pitch Angle at Left Door Sill = 1.1 Rear higher
 Roll Angle at Front Bumper = 0.4 Right-side higher
 Roll Angle at Rear Bumper = 0.2 Right-side higher

VEHICLE WHEELBASE = 3570 mm

REMARKS: The seat travel distance was measured to be 240 mm for the driver front seat and 240 mm for the passenger front seat.

RECORDED BY: David G. Gotwals

DATE: April 8, 2004

APPROVED BY: Helen A. Kaleta

TABLE 2-3

HORIZONTAL IMPACT ANGLE RANGE FOR A AND B PILLARS

VEH. MOD YR/MAKE/MODEL/BODY: 2004 Nissan Titan King CabVEH. NHTSA NO.: C45206 VIN: 1N6AA06A74N508862 COLOR: SilverVEH. BUILD DATE: December, 2003 TEST DATES: April 6-7, 2004TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Darrel Steger, George Baker, Scott Kreiger

HORIZONTAL IMPACT ANGLE RANGE FOR A AND B PILLARS/DOOR FRAMES

	HORIZONTAL ANGLE SPECIFIED RANGE	MINIMUM HORIZONTAL ANGLE	MAXIMUM HORIZONTAL ANGLE
A-PILLAR	L 195°-255°	L 196.0°	L 247.2°
	R 105°-165°	R 112.3°	R 164.3°
DOOR FRAME	L 195°-345°	L 213.2°	L 282.4°
	R 15°-165°	R 77.1°	R 146.9°

AS DETERMINED USING THE PROCEDURES SPECIFIED IN S8.13.4.1

REMARKS:

RECORDED BY: David G. Gotwals DATE: April 8, 2004APPROVED BY: Helen A. Kaleto

TABLE 2-4

VERTICAL IMPACT ANGLE RANGES

VEH. MOD YR/MAKE/MODEL/BODY: 2004 Nissan Titan King CabVEH. NHTSA NO.: C45206 VIN: 1N6AA06A74N508862 COLOR: SilverVEH. BUILD DATE: December, 2003 TEST DATES: April 6-7, 2004TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Darrel Steger, George Baker, Scott Kreiner

VERTICAL IMPACT ANGLE RANGES

		VERTICAL ANGLE SPECIFIED RANGE	MINIMUM VERTICAL ANGLE	MAXIMUM VERTICAL ANGLE
FRONT HEADER	FH1	R 0°-50°	R 0°	R 50°
	FH2	R 0°-50°	R 0°	R 50°
SIDE RAIL	SR1	R 0°-50°	R 0°	R 21°
	SR2A	R 0°-50°	R 0°	R 50°
	SR2R	R 0°-50°	R 0°	R 40°
A-PILLAR	AP1	R -5°-50°	R -5°	R 24°
	AP2	R -5°-50°	R -5°	R 37°
	AP3	R -5°-50°	R -5°	R 49°
DOOR FRAME	DF1	R -10°-50°	R -10°	R 17°
	DF2*	R 0°-50°	R 0°	R 0°
	DF3	R -10°-50°	R -10°	R -10°
	DF4	R -10°-50°	R -10°	R -10°
REAR PILLAR	RP1	R -10°-50°	R -10°	R 19°
	RP2*	R 0°-50°	R 0°	R 0°
REAR HEADER	RH	R -10°-50°	R -10°	R 50°
UPPER ROOF 1		0°-50	0°	50°
UPPER ROOF 2		0°-50	0°	50°
UPPER ROOF 3		0°-50	0°	40°
UPPER ROOF 4		0°-50	0°	45°

	VERTICAL ANGLE SPECIFIED RANGE	MINIMUM VERTICAL ANGLE	MAXIMUM VERTICAL ANGLE
UPPER ROOF 5	0°-50	0°	41°

As determined using the Procedures specified in S8.13.4.2. *Targets DF2 and RP2 are seat belt anchorage locations.

RECORDED BY: David G. Gotwals

DATE: April 8, 2004

APPROVED BY: Helen A. Kaleta

TABLE 2-5

TARGET MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: 2004 Nissan Titan King CabVEH. NHTSA NO.: C45206 VIN: 1N8AA06A74N508862 COLOR: SilverVEH. BUILD DATE: December, 2003 TEST DATES: April 6-7, 2004TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Darrel Steger, George Baker, Scott Kreiger

Measurement	Description	Left Side	Right Side
M	Seat Fore/Aft Travel (Front seats)	240.0 mm	240.0 mm
T°	Horizontal < {CG-F1 (Left Seat) to (Right A-Pillar)}	112.8°	--
A1°	360° - T°	247.2°	--
W°	Horizontal < {CG-2 (Left Seat) to (Left A-Pillar)}	196.0°	--
A2°	A2° = W°	196.0°	--
U°	Horizontal < {CG-2 (Left Seat) to (Left Door Frame)}	282.4°	--
D1°	B1° = U°	282.4°	--
V°	Horizontal < {CG-R (Left Seat) to (Left Door Frame)}	213.2°	--
D2°	B2° = V°	213.2°	--
W° (right)	Horizontal < {CG-F2 (Right Seat) to (Right A-Pillar)}	--	164.3°
A1° (right)	A1° (right) = W° (right)	--	164.3°
T° (right)	Horizontal < {CG-F1 (Right Seat) to (Left A-Pillar)}	--	247.7°
A2° (right)	360° - T° (right)	--	112.3°
V° (right)	Horizontal < {CG-R (Right Seat) to (Right Door Frame)}	--	146.8°
D1° (right)	B1° (right) = V° (right)	--	146.9°
U° (right)	Horizontal < {CG-F2 (Right Seat) to (Right Door Frame)}	--	77.1°
D2° (right)	B2° (right) = U° (right)	--	77.1°
J	A-Pillar {(Plane 3) - (Plane 5)}	--	328.0 mm
J/2	J + 2	--	164.0 mm
D1	Upper Roof {(Plane A) - (Plane B)}	1550.0 mm	
D1/2	D1 + 2	775.0 mm	
D2	Upper Roof {(Plane C) - (Plane D)}	1425.4 mm	
D2/2	D2 + 2	712.7 mm	
.35D1	.35 x D1	542.5 mm	
.35D2	.35 x D2	498.9 mm	

Measurement	Description	Left Side	Right Side
D	R-Pillar (Point 7 – Point M)	–	770 mm
D/2	D / 2	–	385 mm
DN	Door Frame (Plane D8 – Plane D9)	–	544.4 mm
DN/2	DN / 2 for Door Frame	–	272.2 mm
DN/4	DN / 4 for Door Frame	–	136.1 mm

As determined using the Procedures specified in S10.1-10.13.

SgRP Locations (vehicle coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
Front	1527.8	-455.0	377.7	1527.8	455.0	377.7
Rear Row	2221.5	-455.0	377.7	2221.5	455.0	377.7

SgRP Locations (world coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
Front	1528.0	-454.2	378.3	1527.9	455.3	377.7
Rear Row	2222.1	-454.1	378.2	2222.0	455.4	377.7

CG Locations (world coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
CGF1	1448.0	-454.2	1038.3	1447.9	455.3	1037.7
CGF2	1688.0	-454.2	1038.3	1687.9	455.3	1037.7
CGR	2382.1	-454.1	1038.2	2382.0	455.4	1037.7

REFERENCE FOR VEHICLE COORDINATE SYSTEM:

Driver seat bolt anchorage hole (x, y, z) = (1163.5, -675, 46.1 mm);

REMARKS: None

RECORDED BY: David G. Gotwals

DATE: April 7, 2004

APPROVED BY: Helen A. Kaleto

TABLE 2-6

SUMMARY OF TARGETING RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 2004 Nissan Titan King CabVEH. NHTSA NO.: C45206 VIN: 1N6AA06A74N508862 COLOR: SilverVEH. BUILD DATE: December, 2003 TEST DATES: April 6-7, 2004TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Darrel Steger, George Baker, Scott Kreiger

SUMMARY OF TARGETING RESULTS								
Target	Location (mm)			Horizontal Angle (deg)	Vertical Angle (deg)	Relocation (Yes/No)	Extension (# of 25 mm Spheres)	Impact (Yes/No)
	x	y	z					
A-Pillar Right Side								
AP1	1140.7	658.3	1145.3	113	24	No	—	Yes
AP2	1024.1	650.2	1057.0	167	37	No	--	No
AP3	905.2	665.3	982.1	184	49	No	—	Yes
Rear-Pillar Right Side								
RP1	2412.8	608.1	1223.5	30	19	No	—	No
RP2	2455.3	662.8	1120.8	90	0	No	—	Yes
Front Header Right Side								
FH1	1082.4	586.3	1195.9	—	—	Yes	—	--
REL	1088.4	517.1	1190.5	180	50	—	2	No
FH2	1067.8	416.4	1190.8	—	—	Yes	--	--
REL	1076.2	417.6	1188.6	180	50	—	1	No
Side Rail Left Side								
SR1	1289.7	598.1	1255.1	—	—	Yes	--	--
REL	1288.6	622.7	1212.6	90	21	--	2	No
SR2A	1440.7	597.7	1263.1	—	--	Yes	—	—
REL	1440.6	644.4	1217.2	90	50	--	3	Yes
SR2R	2112.0	591.7	1290.6	—	--	Yes	—	--
REL	2124.6	577.4	1279.3	90	40	--	1	No
Rear Header Right Side								
RH	2431.6	455.9	1240.7	—	—	Yes	--	—

SUMMARY OF TARGETING RESULTS

Target	Location (mm)			Horizontal Angle (deg)	Vertical Angle (deg)	Relocation (Yes/No)	Extension (# of 25 mm Spheres)	Impact (Yes/No)
	x	y	z					
REL	2409.2	458.7	1247.4	0	50	—	1	Yes
Door Frame Right Side								
DF1	1833.4	561.3	1299.3	—	—	Yes	—	No
REL	1834.8	586.1	1258.1	90	17	—	2	No
DF2	1816.2	698.7	1002.1	90	0	No	—	No
DF3	1741.6	729.8	1001.7	85	-10	No	—	Yes
DF4	1918.2	798.1	866.7	135	-10	No	—	No
Upper Roof Right Side								
UR1	1298.5	493.0	1243.6	90	50	No	—	Yes
UR2	1863.9	492.6	1303.3	90	50	No	—	Yes
UR3	1836.8	485.9	1312.1	90	40	No	—	Yes
UR4	2113.2	491.8	1321.6	90	45	No	—	Yes
UR5	2300.8	495.3	1307.4	40	41	No	—	No

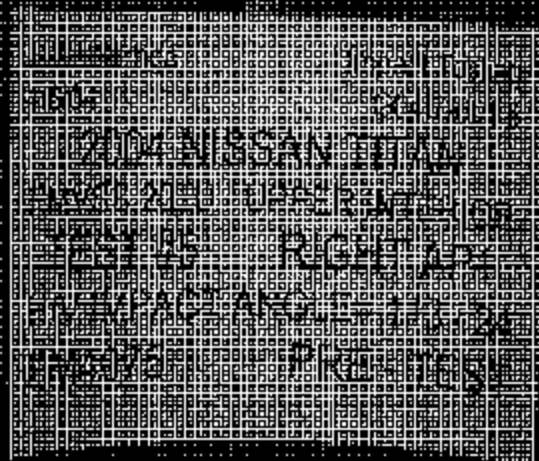
As determined using the Procedures specified in S10.1-10.13.

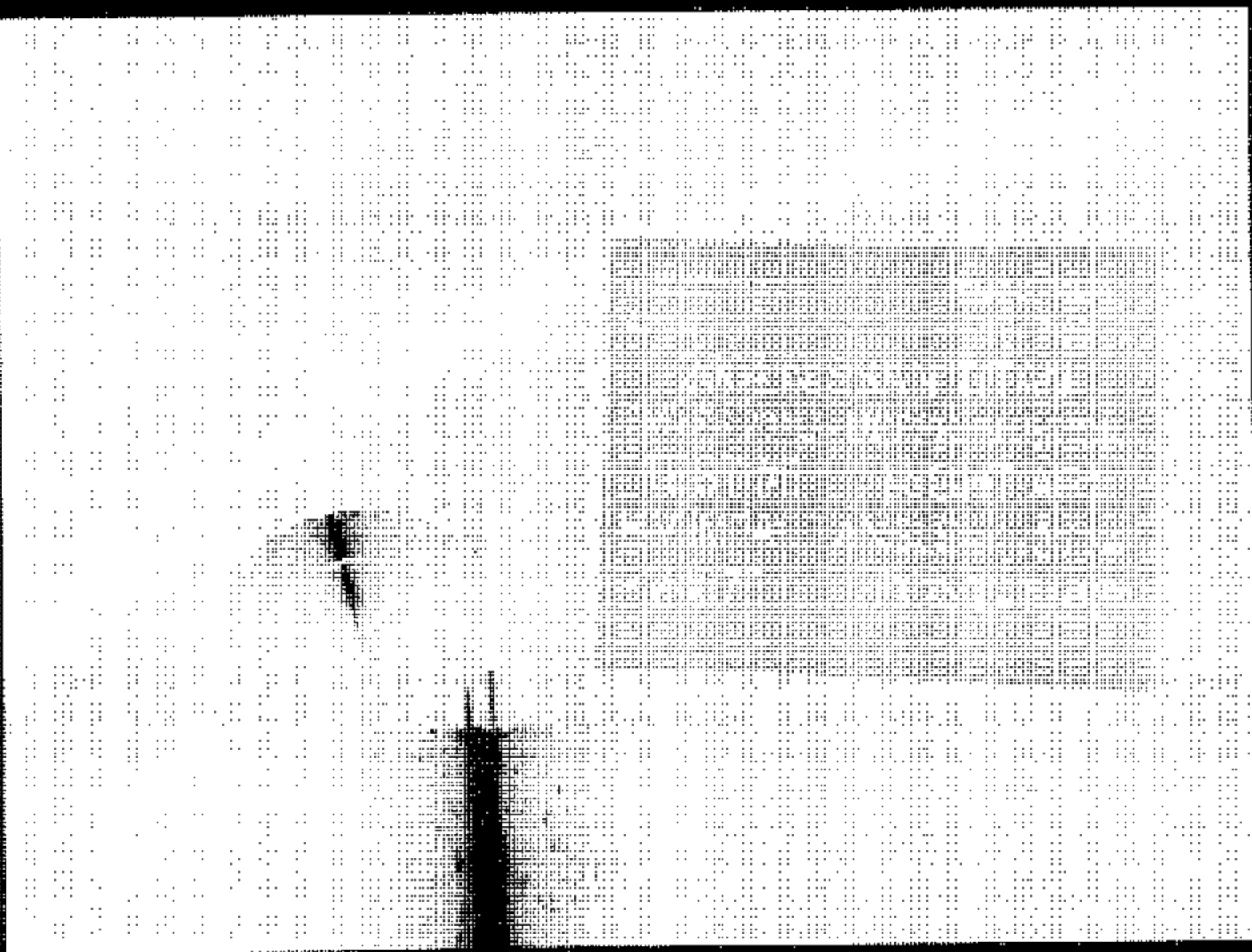
REMARKS: Only the right-side of the vehicle was targeted and tested.

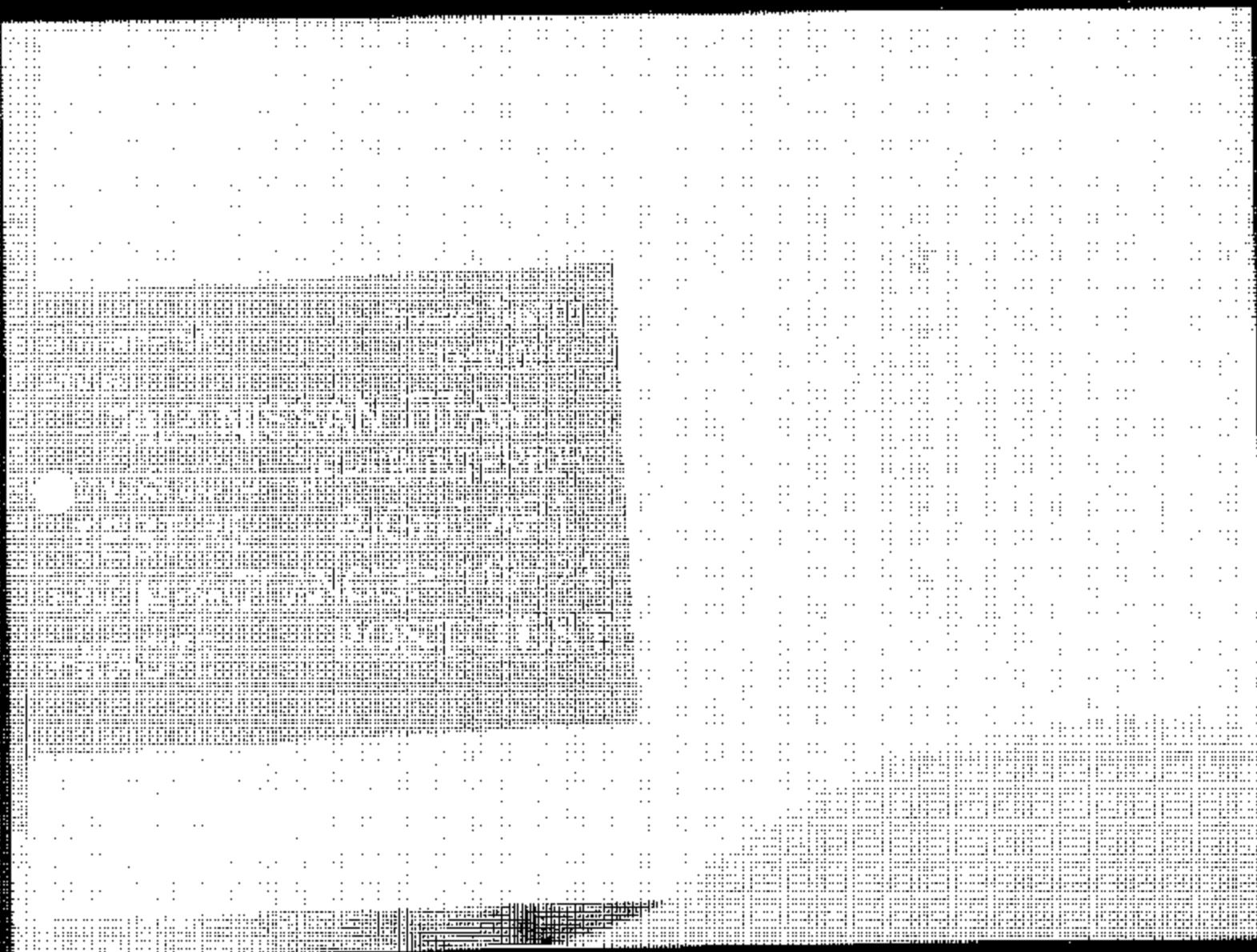
RECORDED BY: David G. Gotwals

DATE: April 7, 2004

APPROVED BY: Helen A. Kaleta







MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DOC. NO.: MGATP201U_FRAME #2
REVISION NO.: 5
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: C45206 VEHICLE YR/MAKE/MODEL: 2004/Nissan/Titan
GENERAL TEST PARAMETERS: Test Number: 5
Target (Vehicle Side): left front API Temperature: 25 °F (C)
MGA Test Reference No.: Fm4095 Humidity: 19 %
Approach Angles: Horizontal 113 ° Time of Test: 5:30 am (pm)
Vertical 24 ° FMH Serial No: 36

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pl. O	Left/Right Pt. O
396	305	8.6	18.4	18	16

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7284-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35923	-99.2	1.20	1.20
Y	6	J35916	99.6	1.25	1.23
Z	7	J35918	99.1	1.51	1.51

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

NO VISIBLE DAMAGE

Recorded By: [Signature] Approved By: [Signature] Date: 4/6/04

*Only necessary for NHTSA (Government) Compliance testing.

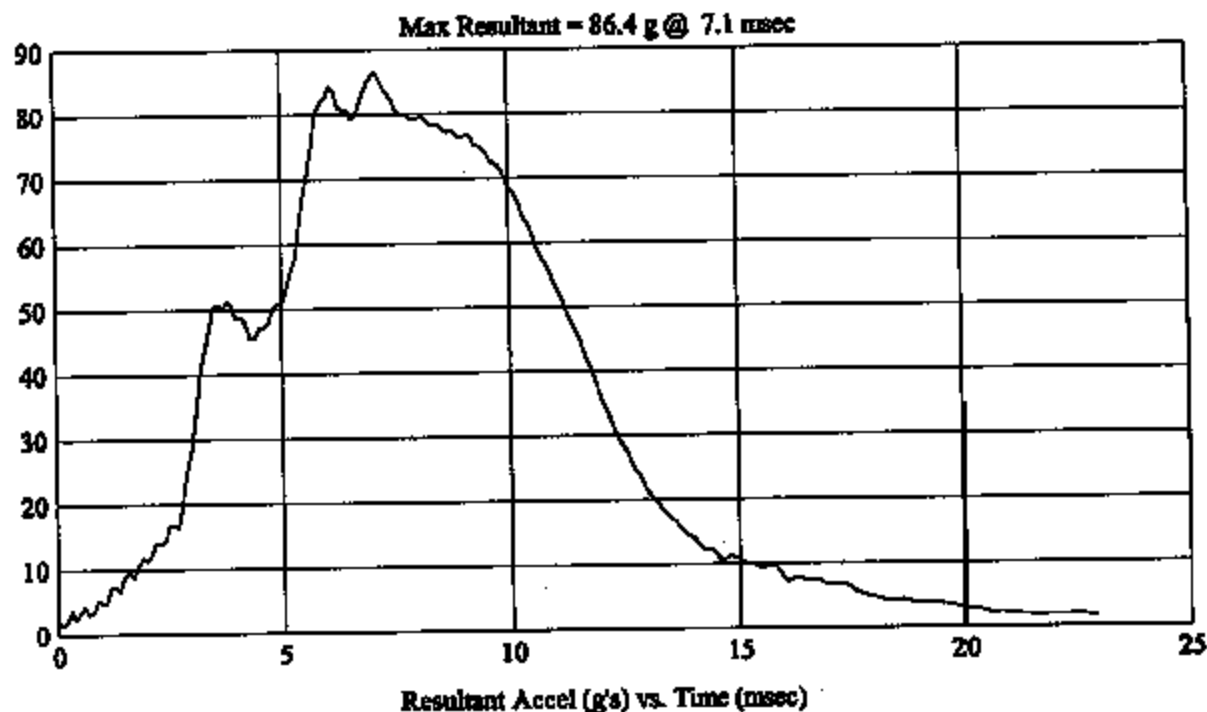
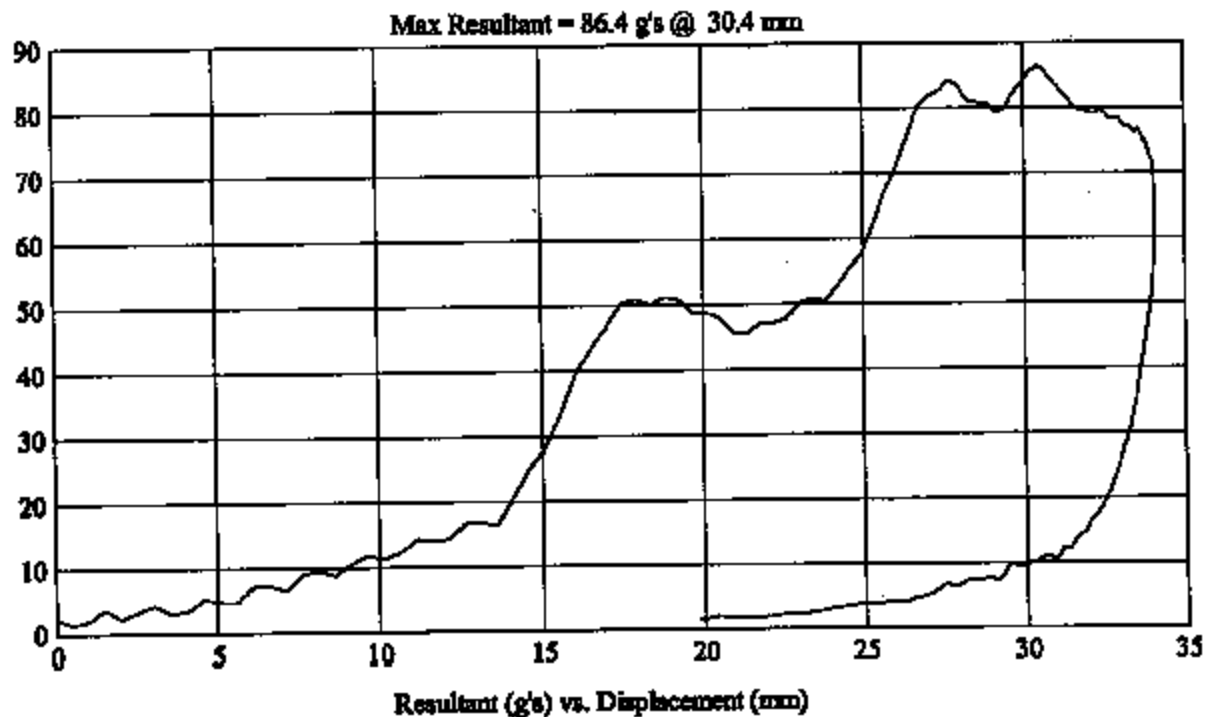
Customer: NISSAN
Test # 5
FM4075
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: AP1
Vehicle Side: Right
Horz/Vert Angle: 113/24

Test Date: 4/6/04

HIC(d) = 396, HIC = 305, Delta T = 8.6 msec



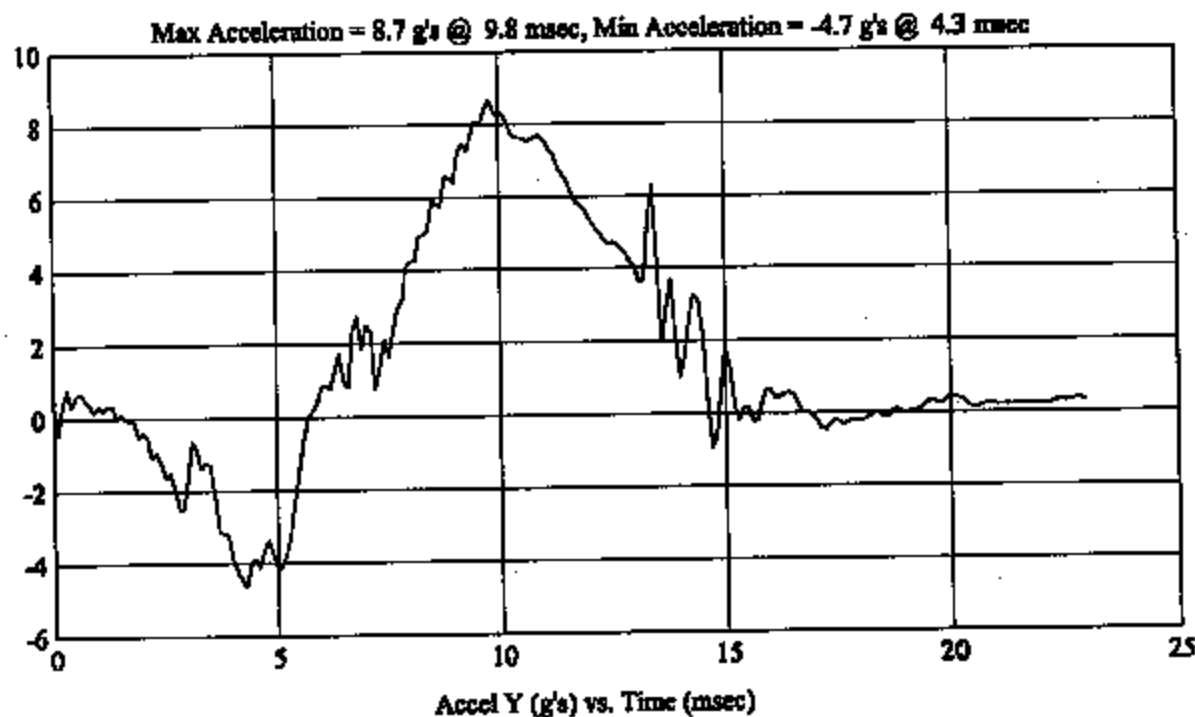
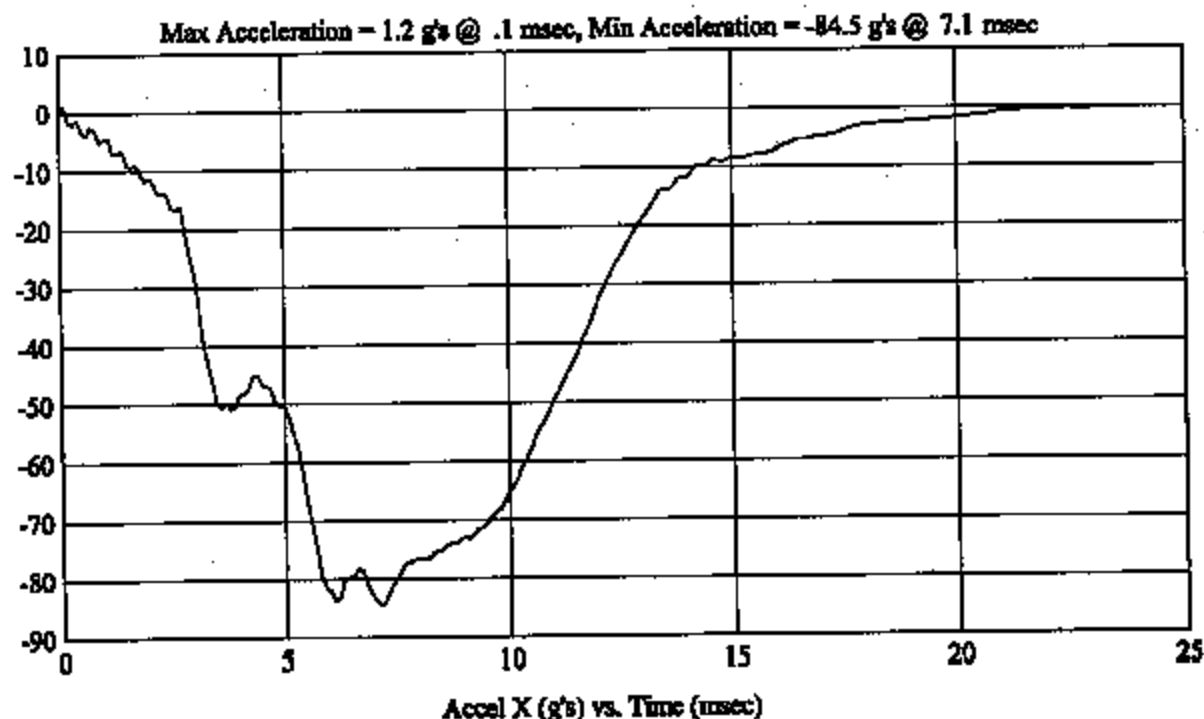
FMH
G0417-001.5Customer: NISSAN
Test # 5
FM4075
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: AP1
Vehicle Side: Right
Horz/Vert Angle: 113/24

Test Date: 4/6/04

HIC(d) = 396, HIC = 305, Delta T = 8.6 msec



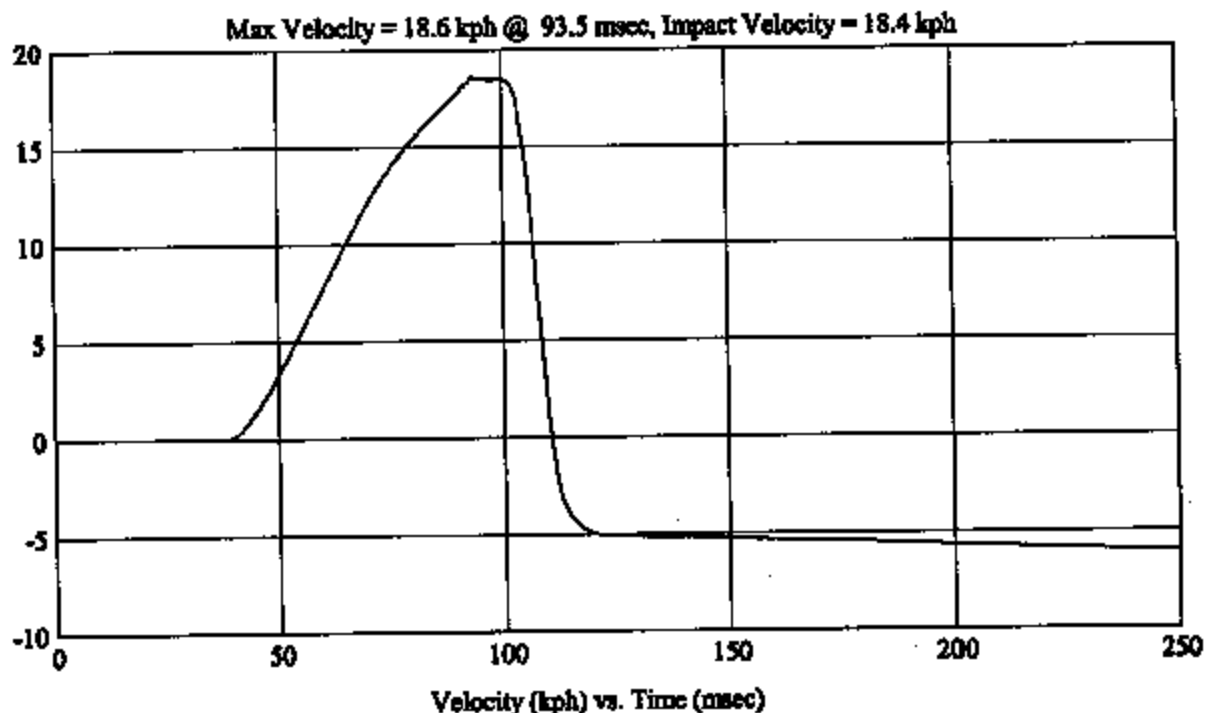
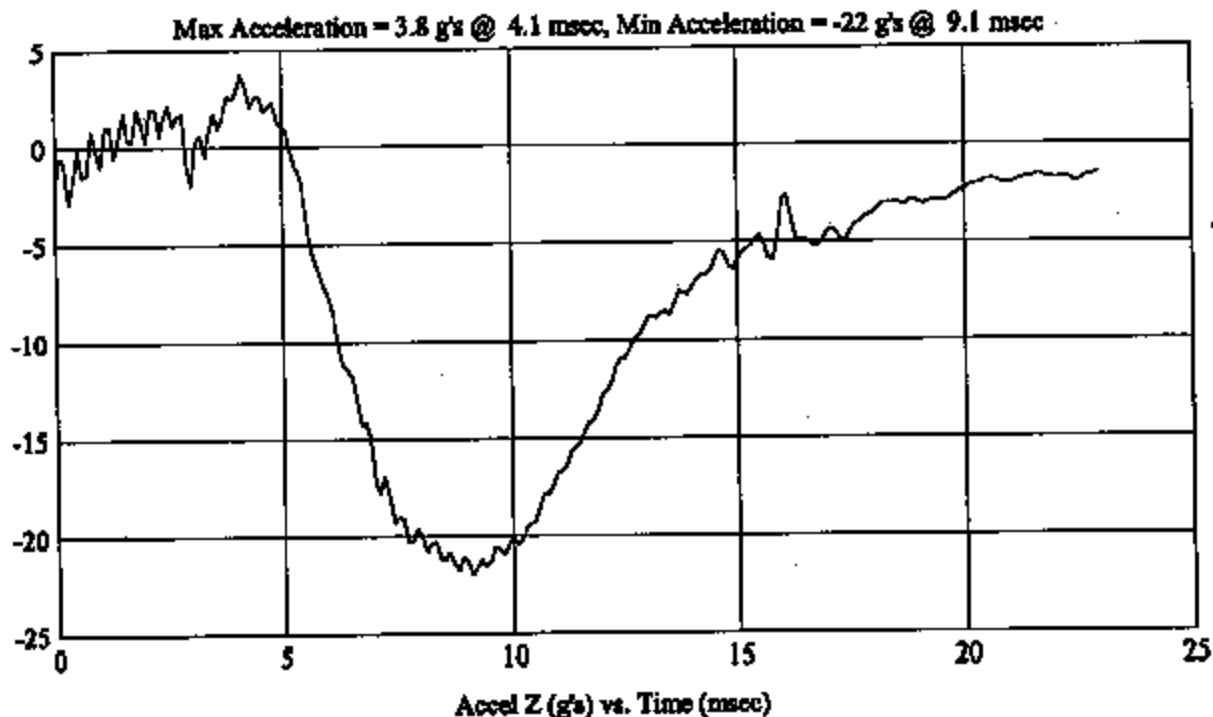
FMH
G0417-001.5Customer: NISSAN
Test # 5
FM4075
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: AP1
Vehicle Side: Right
Horz/Vert Angle: 113/24

Test Date: 4/6/04

HIC(d) = 396, HIC = 305, Delta T = 8.6 msec



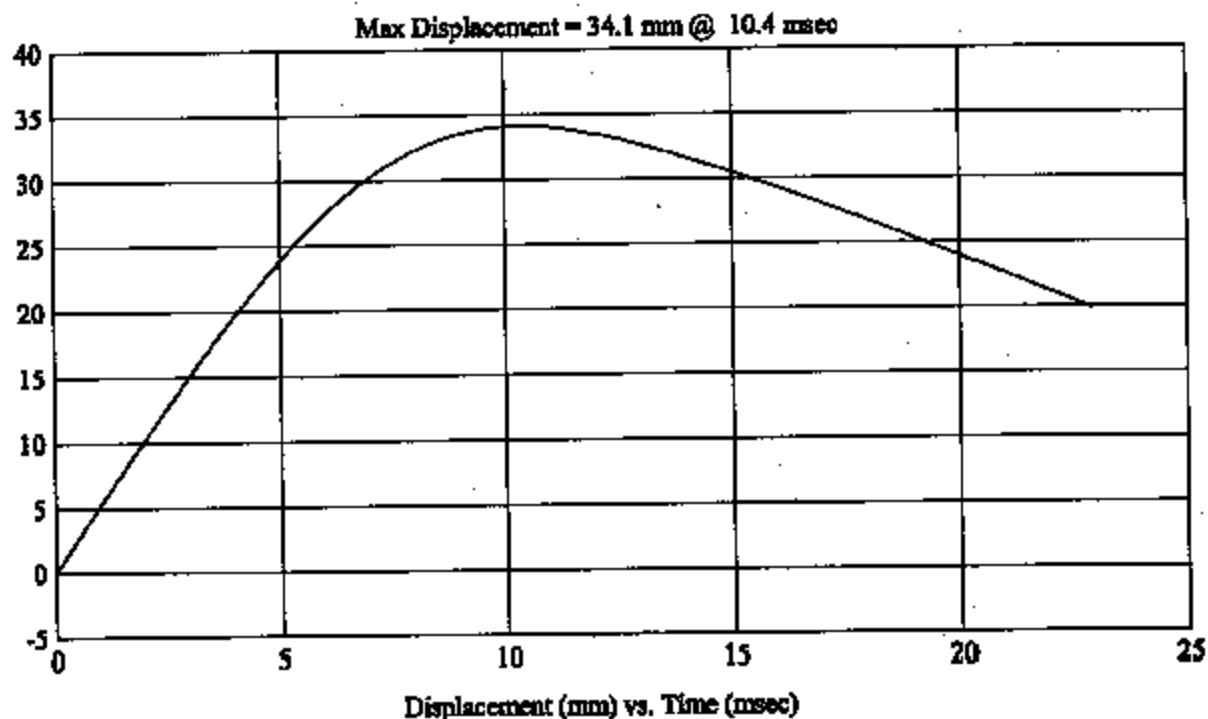
FMH
G0417-001.5Customer: NISSAN
Test # 5
FM4075
Additional Desc: N/A

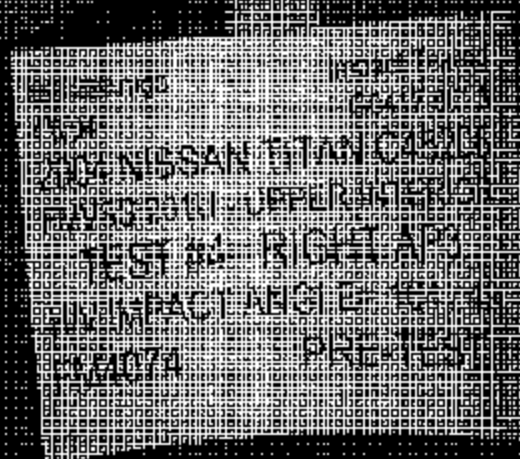
Vehicle Program : TITAN

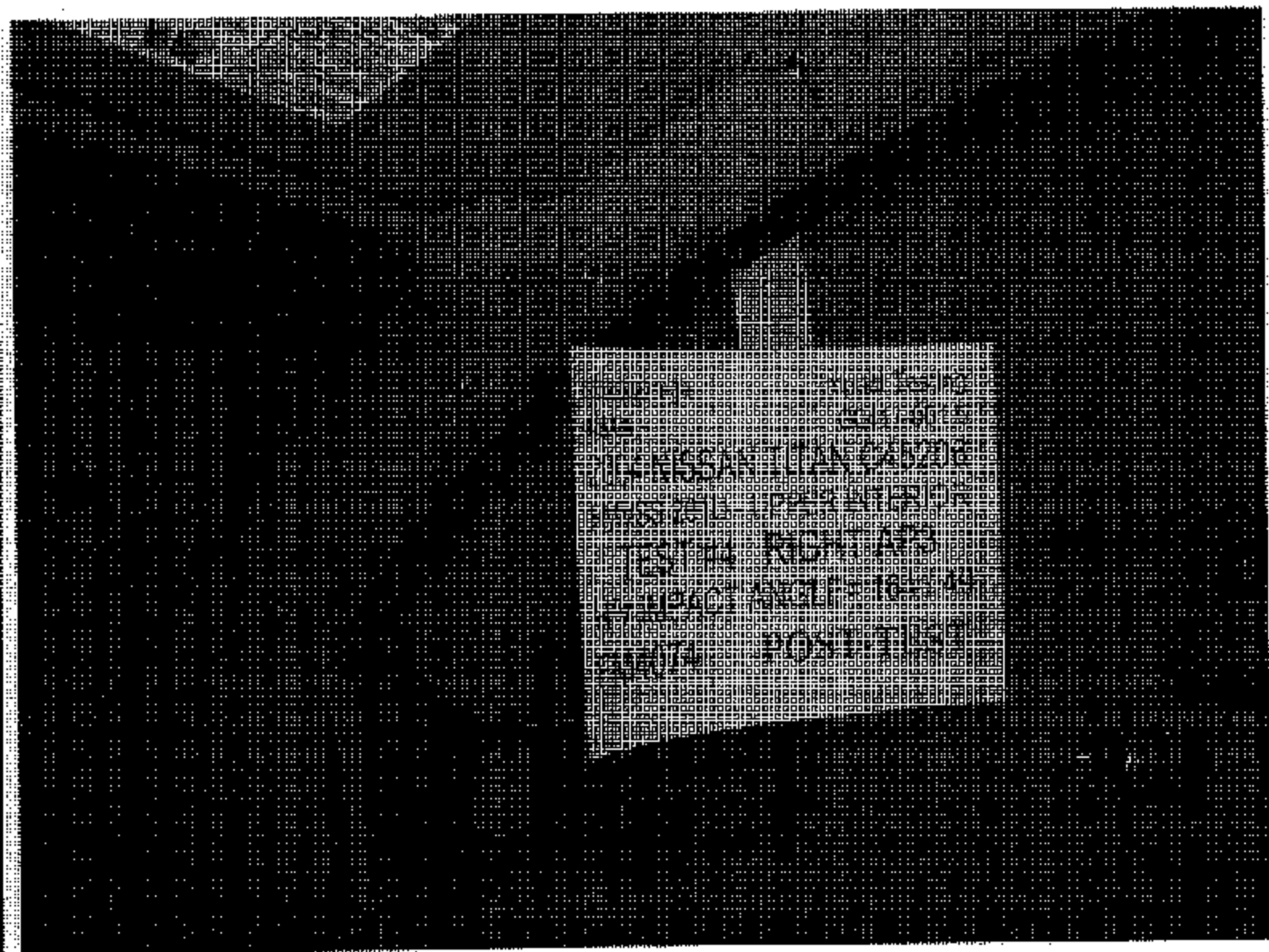
Model Year: 2004
Target: AP1
Vehicle Side: Right
Horz/Vert Angle: 113/24

Test Date: 4/6/04

HIC(d) = 396, HIC = 305, Delta T = 8.6 msec







Impact Testing
G0417-0116
2004 NISSAN TITAN C45206
SS-2010 UPPER INTERIOR
TEST #4 RIGHT AP3
IMPACT ANGLE=164.749
P40014 POST-TEST

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DOC. NO.: MGATP201U_FRAME #2
REVISION NO.: 5
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: C45206 VEHICLE YR/MAKE/MODEL: 2004/NISSAN/TITAN

GENERAL TEST PARAMETERS:

Target (Vehicle Side): left/right AP3

MGA Test Reference No.: FM4074

Approach Angles: Horizontal 164 °

Vertical 49 °

Test Number: 4

Temperature: 25 °F C

Humidity: 19 %

Time of Test: 4:30 am/pm pm

FMH Serial No: 35

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
219	69	7.6	18.7	8	5

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35924	-91.8	1.20	1.20
Y	6	J3549	93.5	1.23	1.23
Z	7	J31051	93.5	1.51	1.51

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

grab handle broke off

Recorded By: [Signature] Approved By: Helen Q. Kaloto Date: 4/6/04

*Only necessary for NHTSA (Government) Compliance testing.

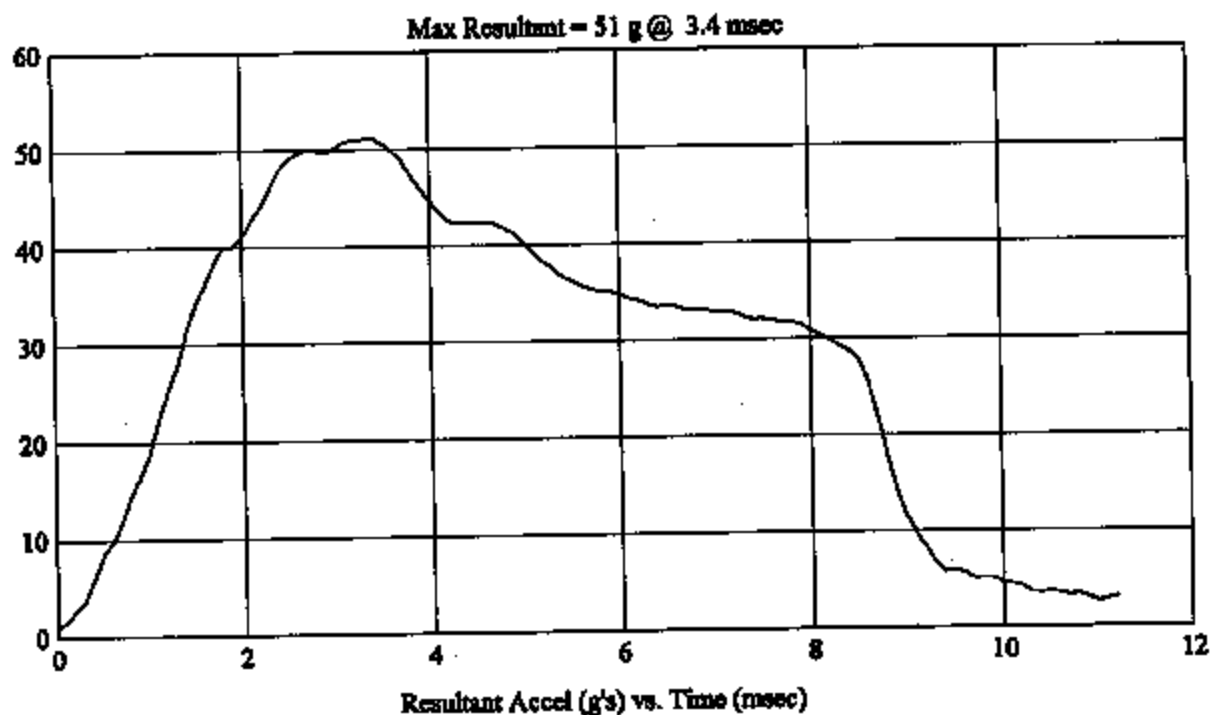
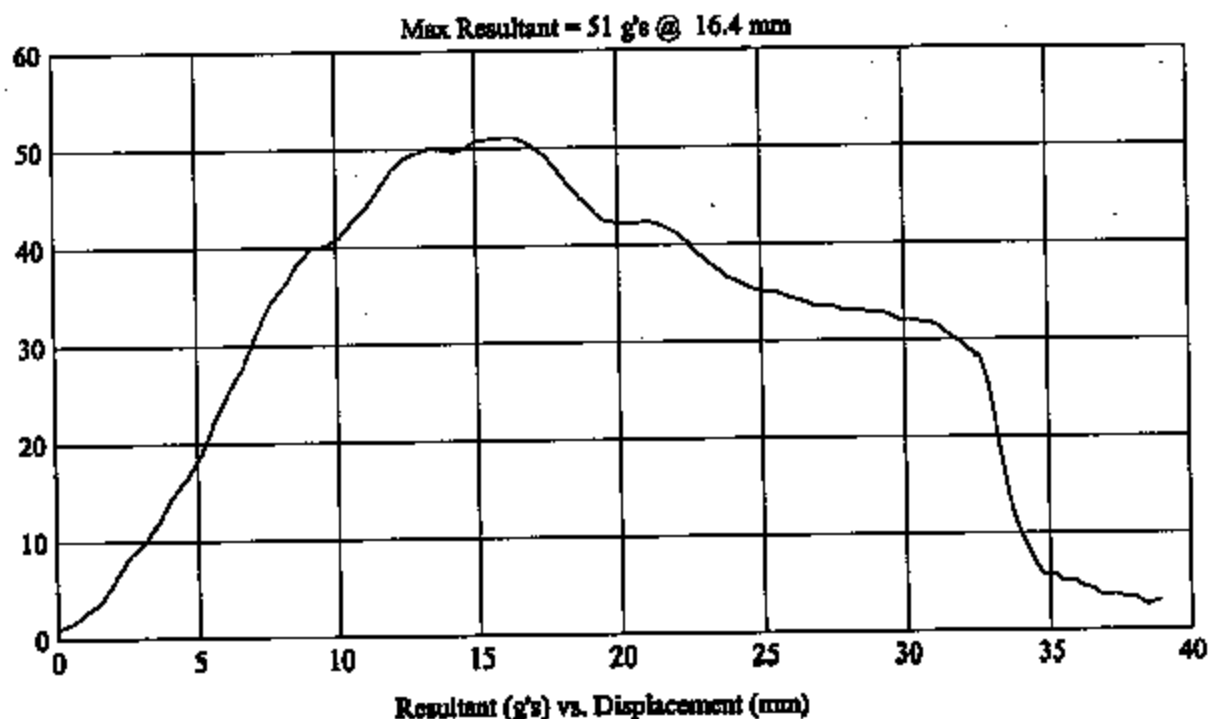
FMH
G04I7-001.5Customer: NISSAN
Test # 4
FM4074
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: AP3
Vehicle Side: Right
Horz/Vert Angle: 164/49

Test Date: 4/6/04

HIC(d) = 219, HIC = 69, Delta T = 7.6 msec



FMH
G04I7-001.5Customer: NISSAN
Test # 4
FM4074
Additional Desc: N/A

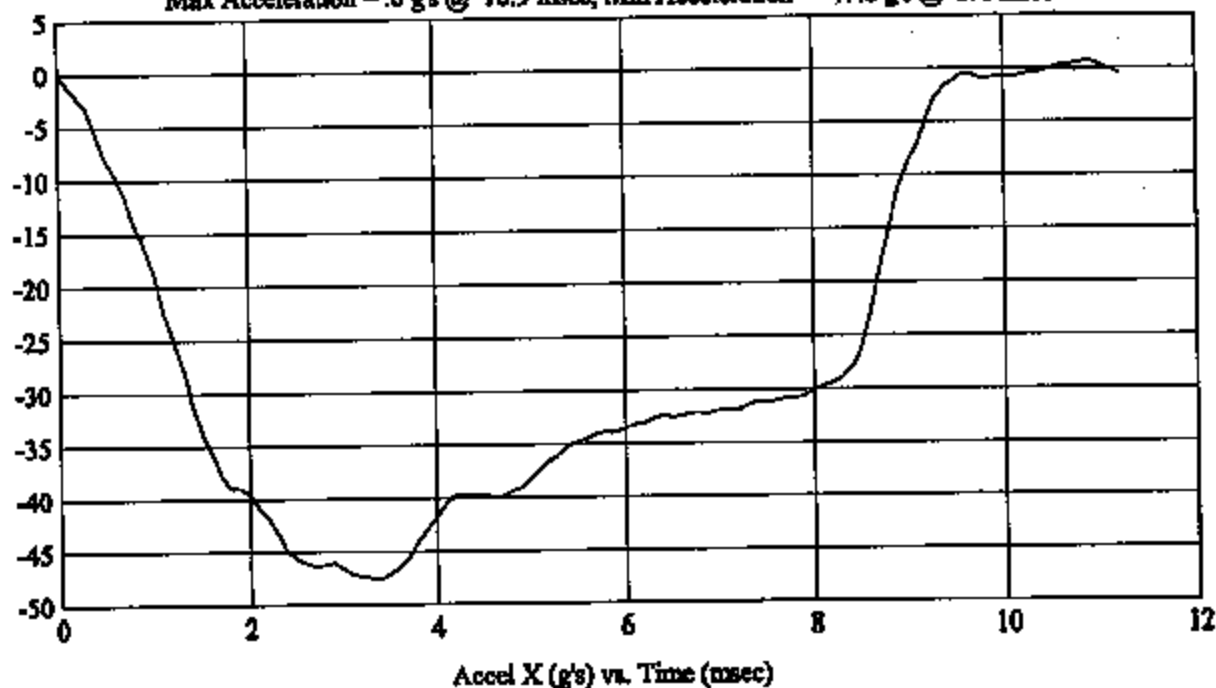
Vehicle Program : TITAN

Model Year: 2004
Target: AP3
Vehicle Side: Right
Horz/Vert Angle: 164/49

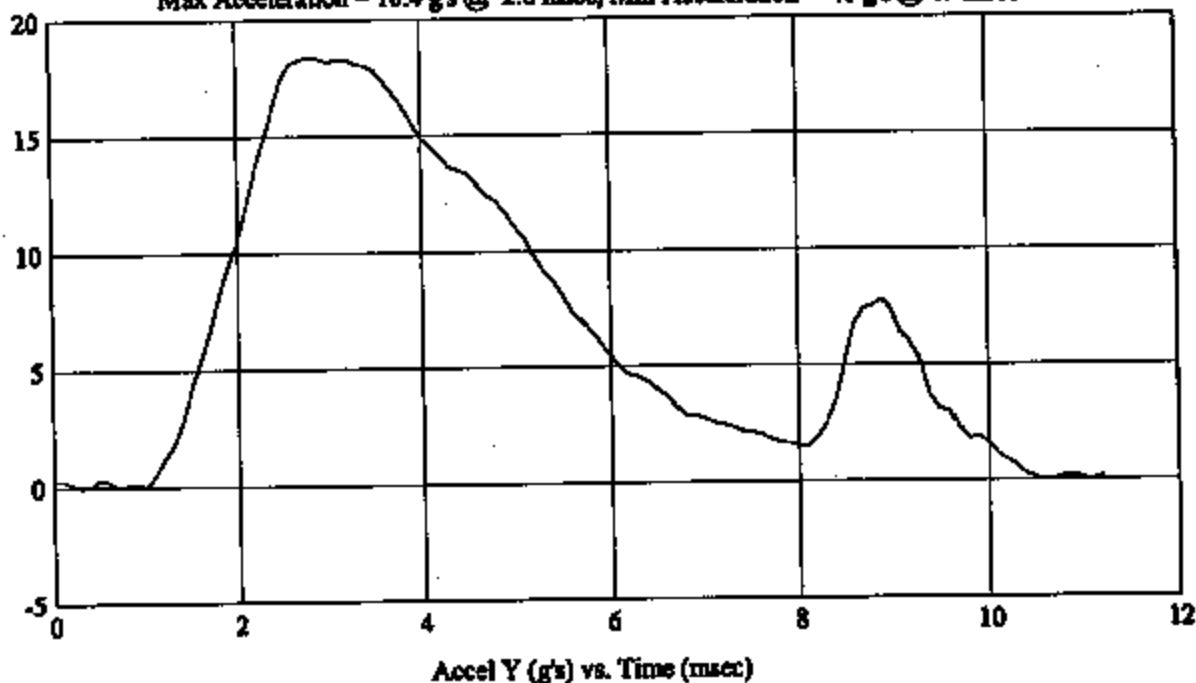
Test Date: 4/6/04

HIC(d) = 219, HIC = 69, Delta T = 7.6 msec

Max Acceleration = .6 g's @ 10.9 msec, Min Acceleration = -47.6 g's @ 3.4 msec



Max Acceleration = 18.4 g's @ 2.8 msec, Min Acceleration = -.1 g's @ .7 msec



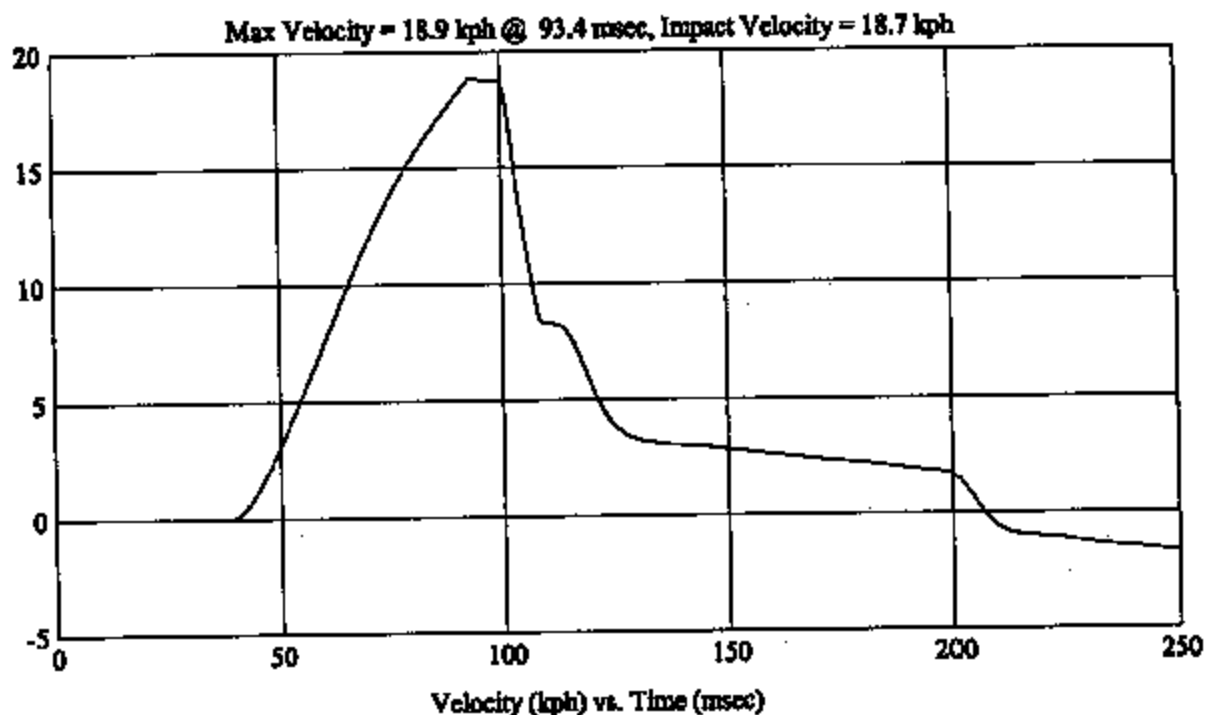
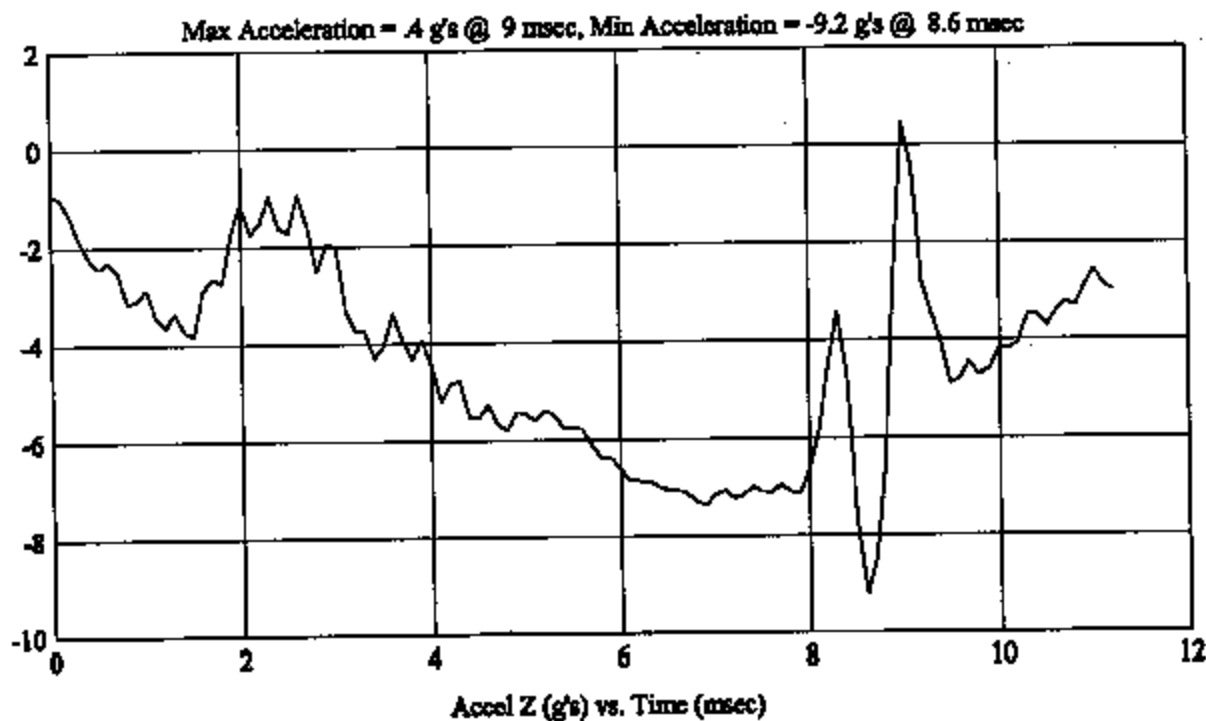
PMH
G04I7-001.5Customer: NISSAN
Test # 4
FM4074
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: AP3
Vehicle Side: Right
Horz/Vert Angle: 164/49

Test Date: 4/6/04

HIC(d) = 219, HIC = 69, Delta T = 7.6 msec



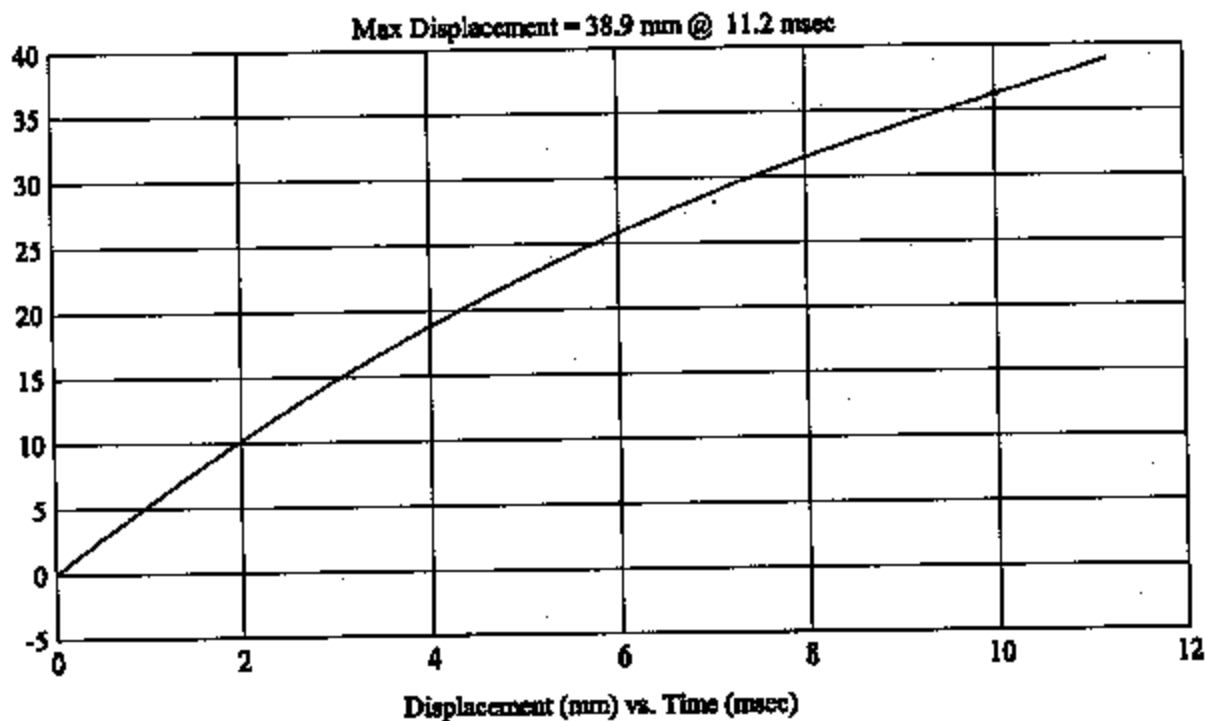
FMH
G04I7-001.5Customer: NISSAN
Test # 4
FM4074
Additional Desc: N/A

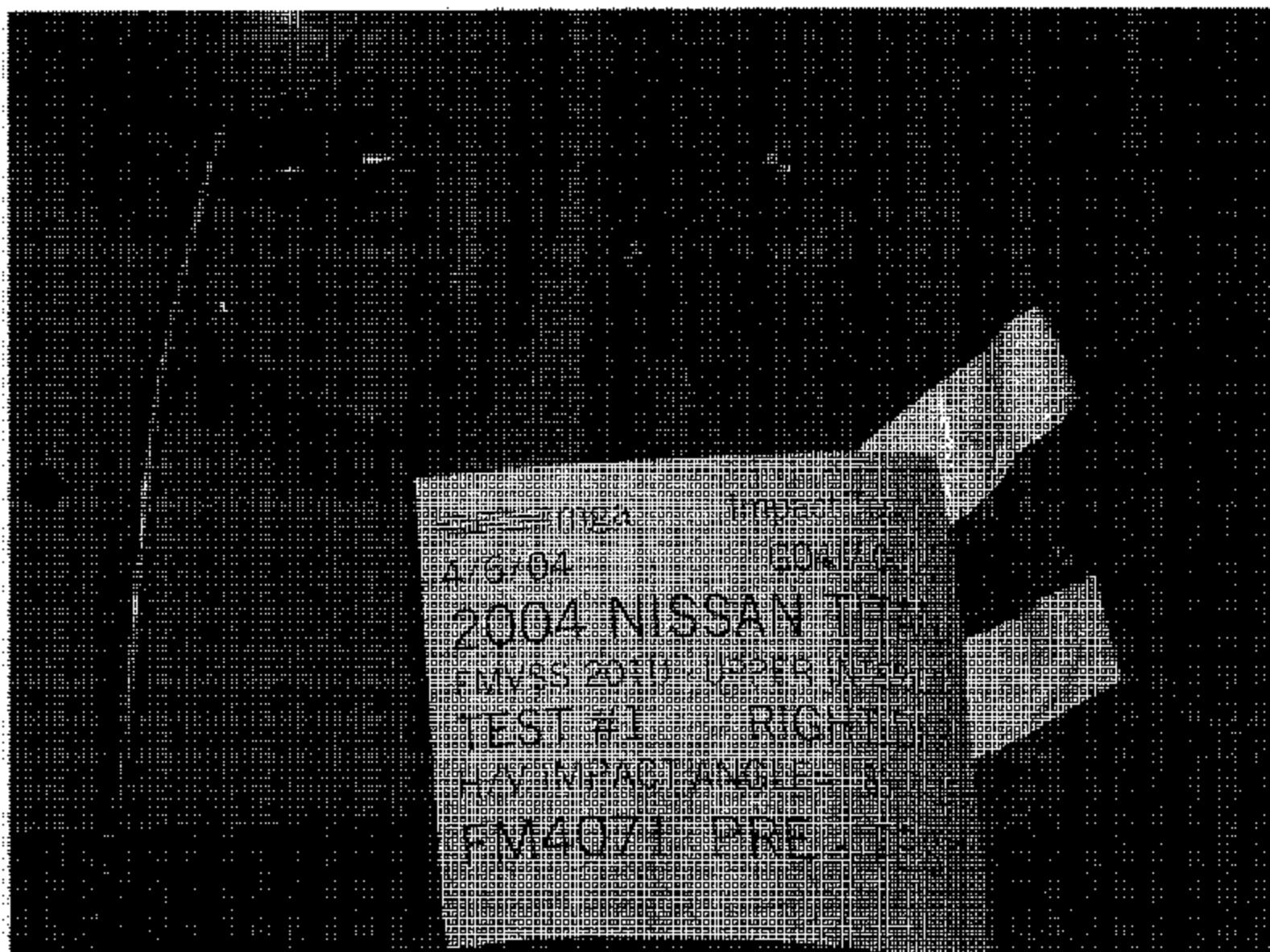
Vehicle Program : TITAN

Model Year: 2004
Target: AP3
Vehicle Side: Right
Horz/Vert Angle: 164/49

Test Date: 4/6/04

HIC(d) = 219, HIC = 69, Delta T = 7.6 msec





Impact Testing
4/6/04 GO4:7-001.5

2004 NISSAN TITAN

FMVSS 2010 - UPPER INTERIOR

TEST #1 RIGHT DF3

H/V IMPACT ANGLE = 85 / 10

FM4071 POST-TEST

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DDC NO: MGATP201U_FRAME #2
REVISION NO: 3
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: C45206 VEHICLE YR/MAKE/MODEL: 2004 NISSAN TITAN

GENERAL TEST PARAMETERS:

Test Number: 1

Target (Vehicle Side): Left Right DF3

Temperature: 24 °F (C)

MGA Test Reference No.: PM4071

Humidity: 16 %

Approach Angles: Horizontal 85 °

Time of Test: 12:45 am (pm)

Vertical -10 °

FMH Serial No: 35

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
<u>443</u>	<u>366</u>	<u>7.6</u>	<u>23.75</u>	<u>20</u>	<u>8</u>

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axle	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
<u>X</u>	<u>5</u>	<u>J35924</u>	<u>-91.8</u>	<u>1.20</u>	<u>1.20</u>
<u>Y</u>	<u>6</u>	<u>J3595</u>	<u>93.5</u>	<u>1.23</u>	<u>1.23</u>
<u>Z</u>	<u>7</u>	<u>J31051</u>	<u>93.5</u>	<u>1.51</u>	<u>1.51</u>

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

NO VISIBLE DAMAGE

SPRINGER TARGET

Recorded By: [Signature] Approved By: Helen A. Koles Date: 4/6/04

*Only necessary for NHTSA (Government) Compliance testing.

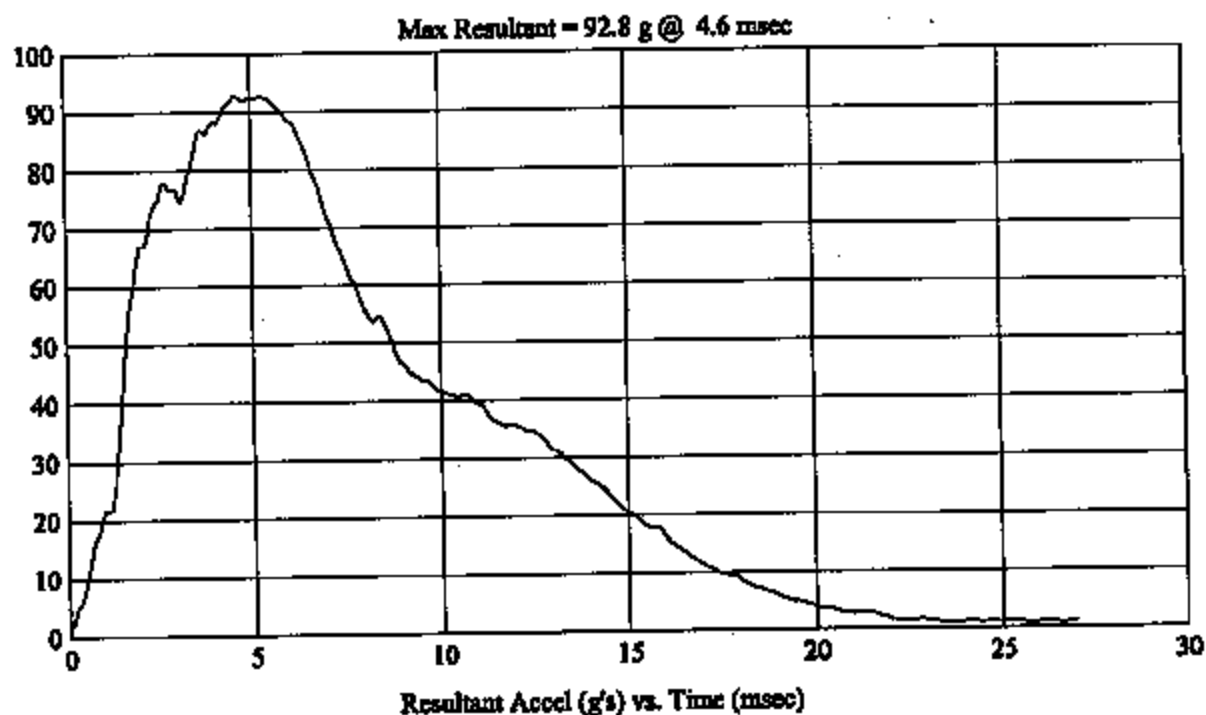
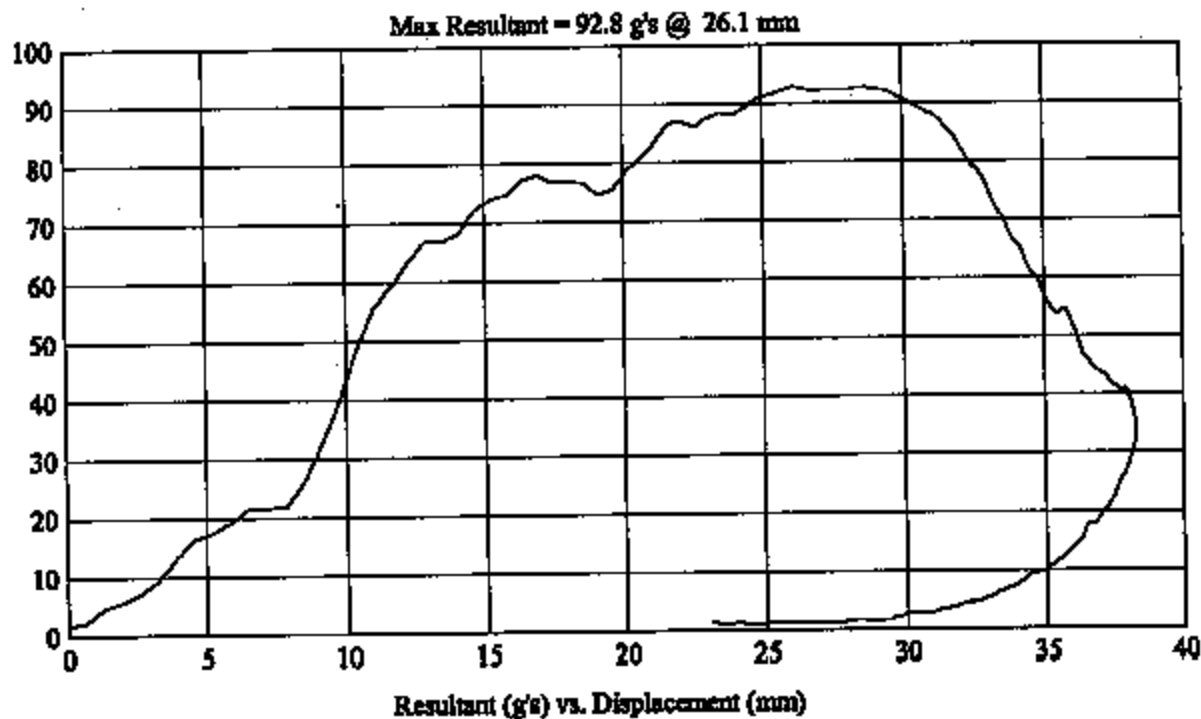
FMH
G04I7-001.5Customer: NISSAN
Test # 1
FM4071
Additional Desc: N/A

Vehicle Program: TITAN

Model Year: 2004
Target: DF3
Vehicle Side: Right
Horz/Vert Angle: 85/-10

Test Date: 4/6/04

HIC(d) = 443, HIC = 366, Delta T = 7.6 msec



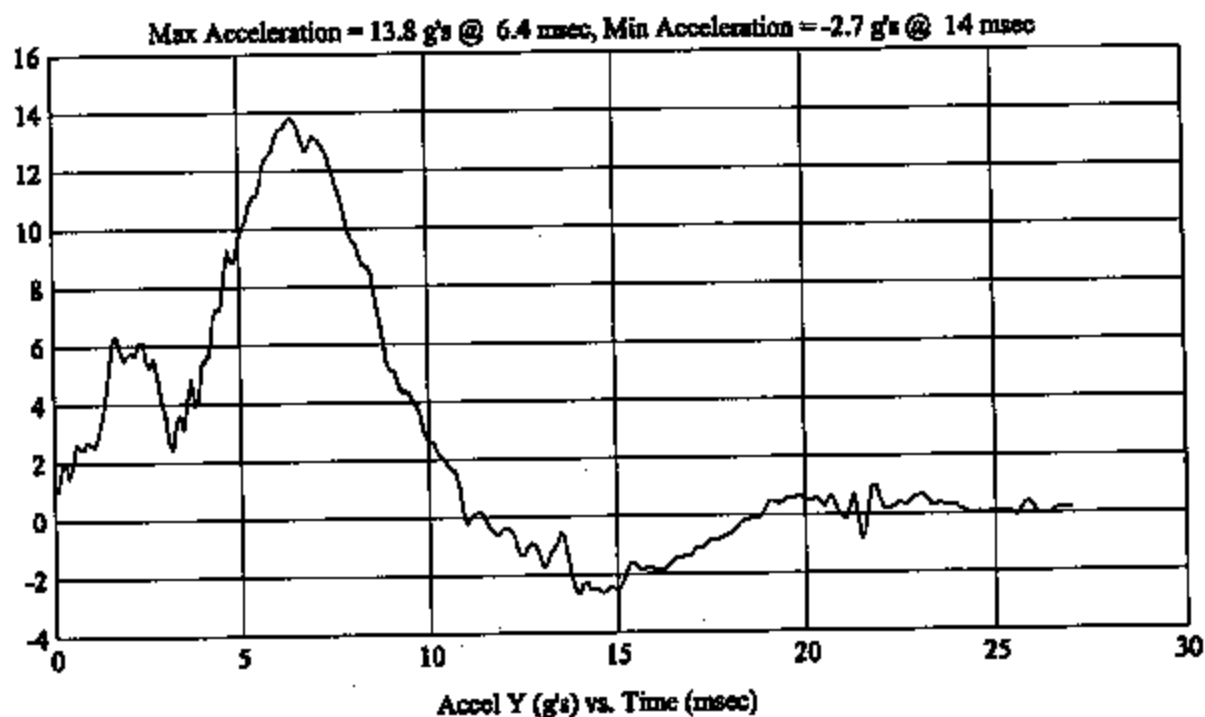
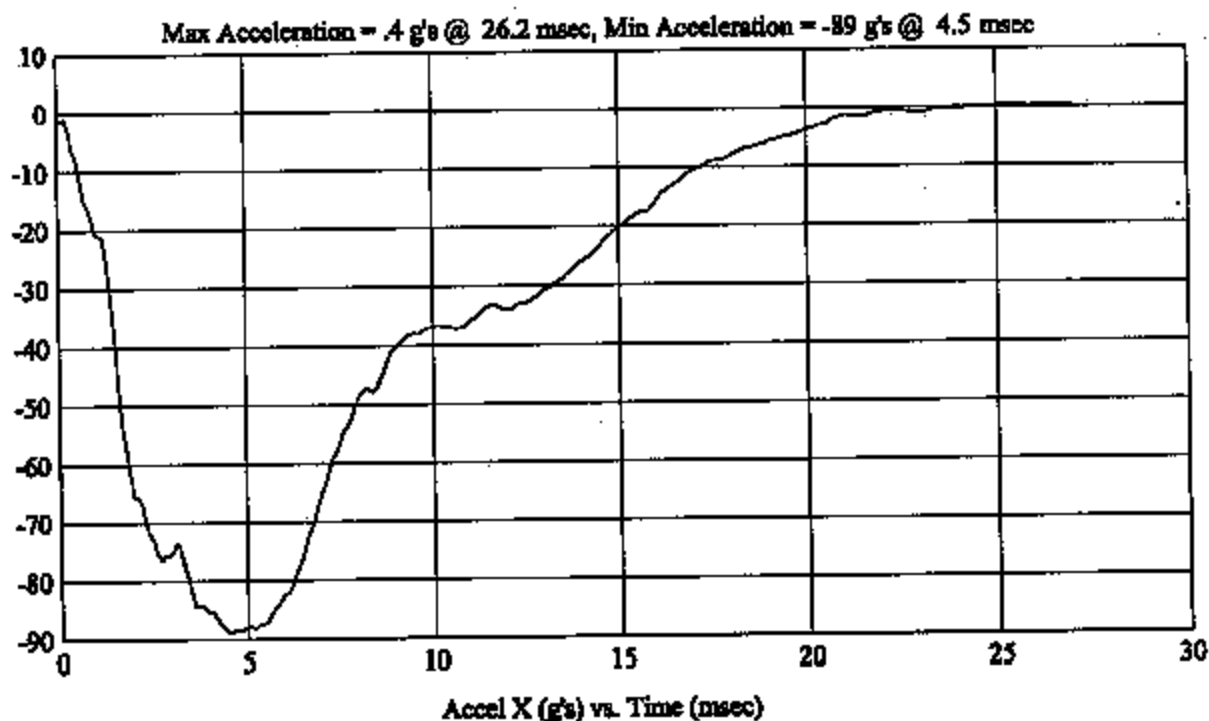
FMH
G04I7-001.5Customer: NISSAN
Test # 1
FM4071
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: DF3
Vehicle Side: Right
Horz/Vert Angle: 85/-10

Test Date: 4/6/04

HIC(d) = 443, HIC = 366, Delta T = 7.6 msec



FMH
G04I7-001.5Customer: NISSAN
Test # 1
FM4071
Additional Desc: N/A

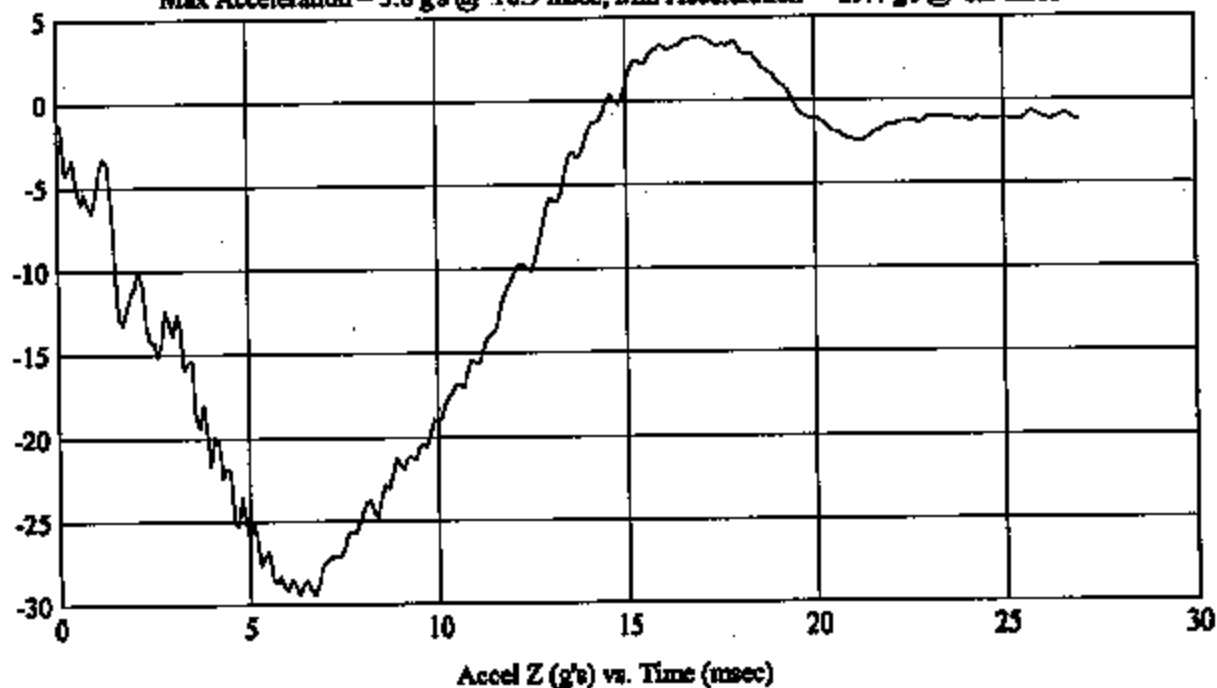
Vehicle Program : TITAN

Model Year: 2004
Target: DF3
Vehicle Side: Right
Horz/Vert Angle: 85/-10

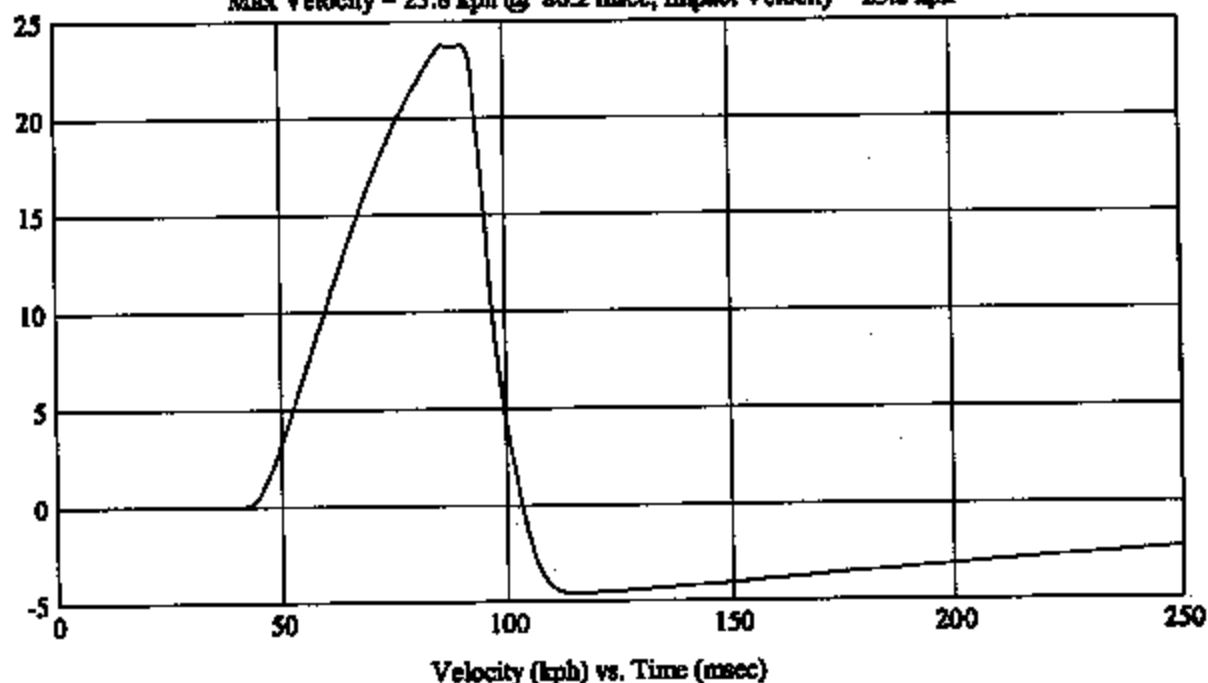
Test Date: 4/6/04

HIC(d) = 443, HIC = 366, Delta T = 7.6 msec

Max Acceleration = 3.8 g's @ 16.9 msec, Min Acceleration = -29.4 g's @ 6.3 msec



Max Velocity = 23.8 kph @ 86.2 msec, Impact Velocity = 23.8 kph



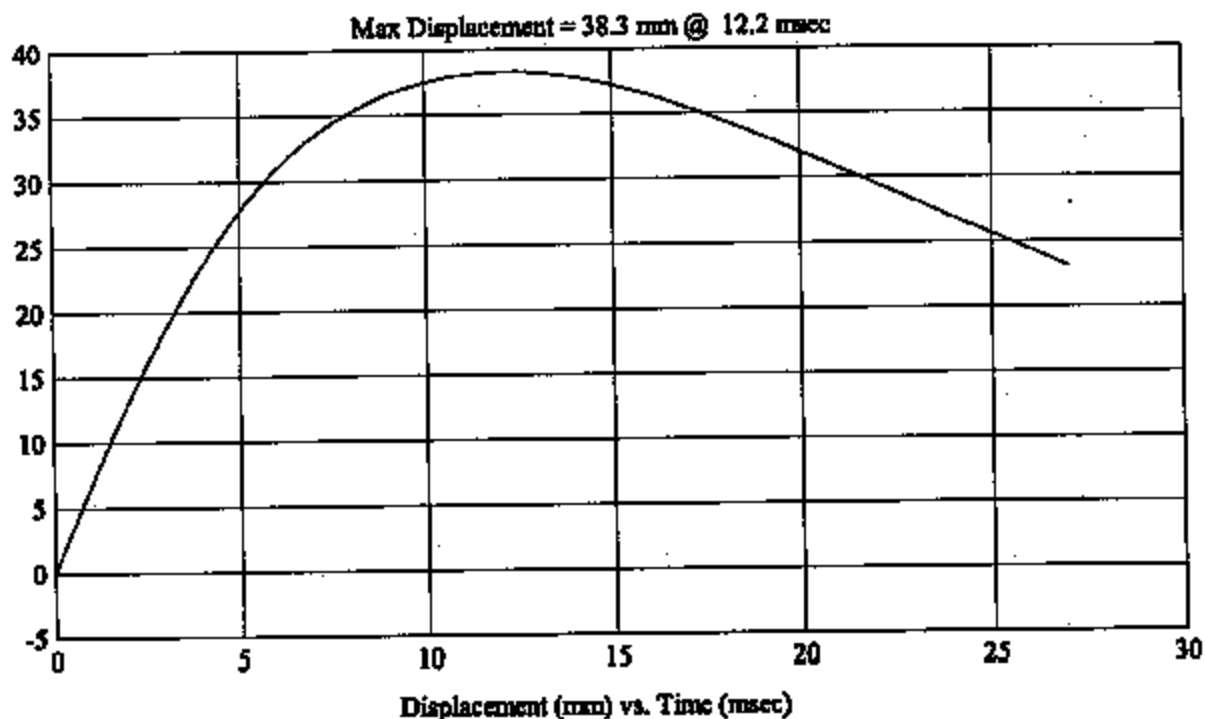
FMH
G04I7-001.5Customer: NISSAN
Test # 1
FM4071
Additional Desc: N/A

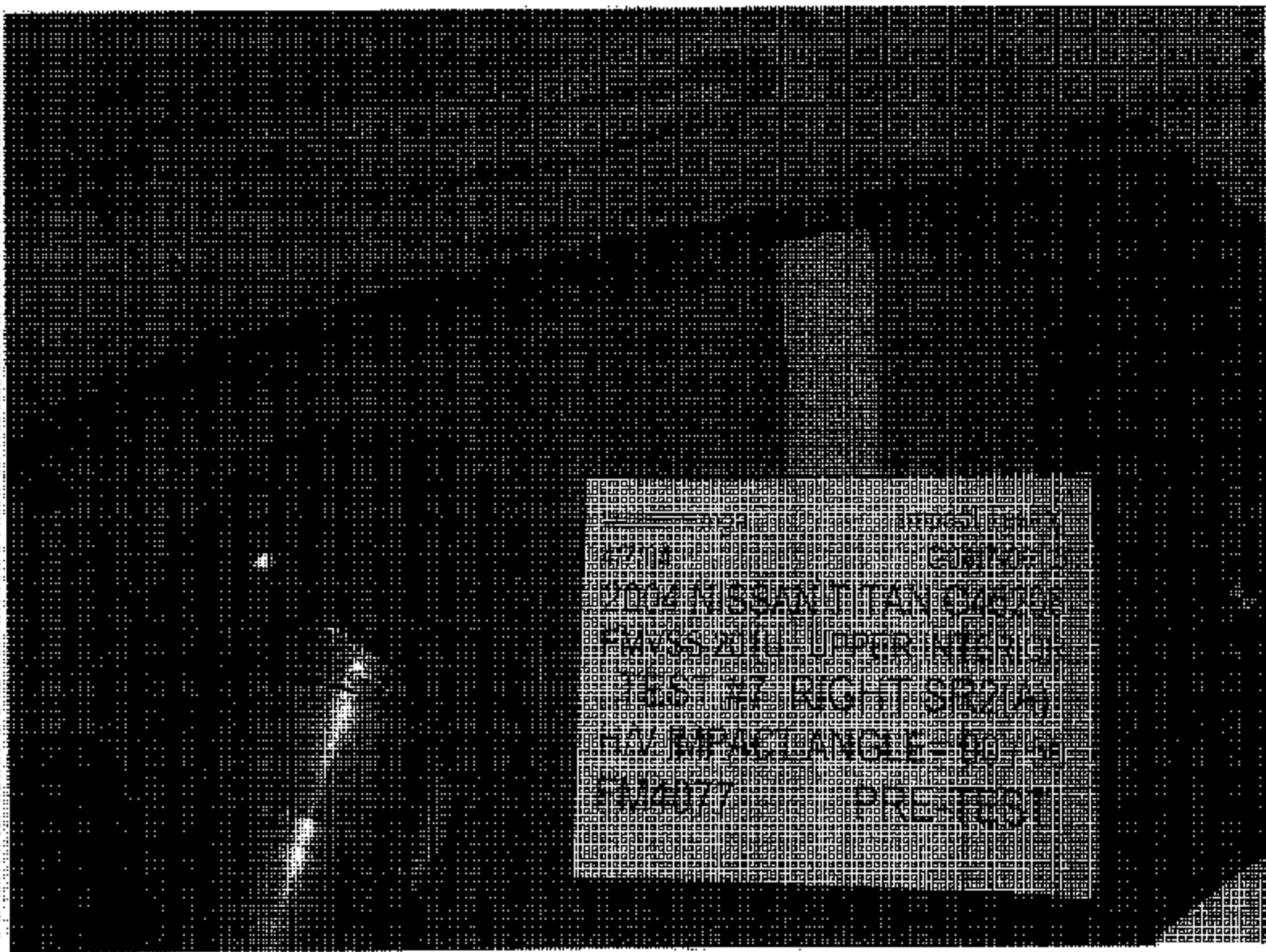
Vehicle Program : TITAN

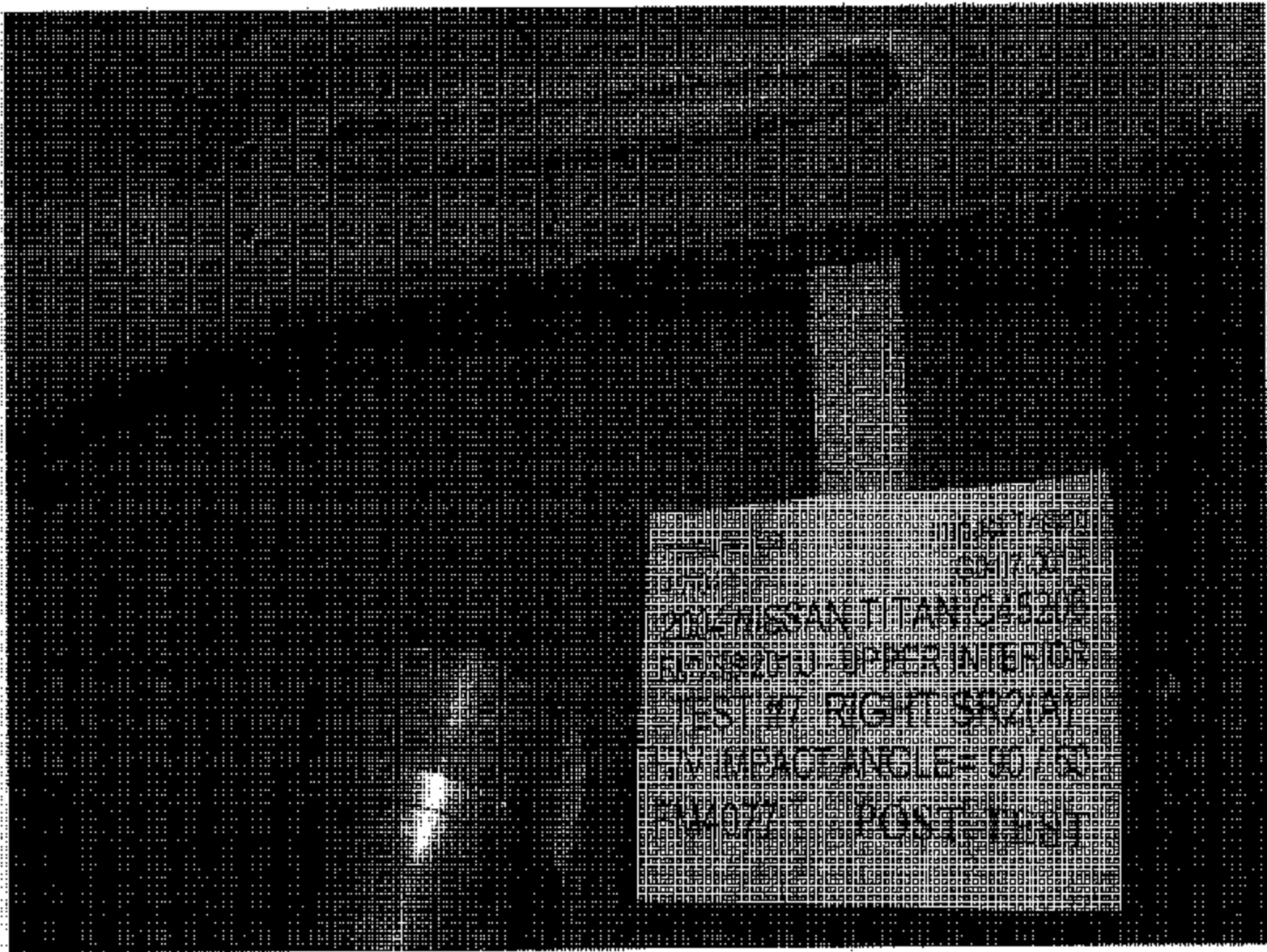
Model Year: 2004
Target: DF3
Vehicle Side: Right
Horz/Vert Angle: 85/-10

Test Date: 4/6/04

HIC(d) = 443, HIC = 366, Delta T = 7.6 msec







Impact Tested

0017-0015

NISSAN TITAN C45208

WSS 2011 UPPER INTERIOR

TEST 77 RIGHT SR2(A)

IMPACT ANGLE= 90 / 50

POST-TEST

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DOC. NO.: MGATP201U_FRAME #2
REVISION NO.: 3
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: 60457-001.5 VEHICLE YR/MAKE/MODEL: 2001/Nissan/Titan

GENERAL TEST PARAMETERS:

Test Number: 7

Target (Vehicle Side): left/right 582-A

Temperature: 25 °F/°C

MGA Test Reference No.: FM4077

Humidity: 24 %

Approach Angles: Horizontal 90 °

Time of Test: 10:00 am/pm

Vertical 50 °

FMH Serial No: 35

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
531	463	4.5	18.9	13	8

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	735924	-91.8	1.20	1.20
Y	6	735919	93.5	1.23	1.23
Z	7	771051	93.5	1.51	1.51

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

no visible damage

Recorded By: [Signature] Approved By: [Signature] Date: 4-7-04

*Only necessary for NHTSA (Government) Compliance testing.

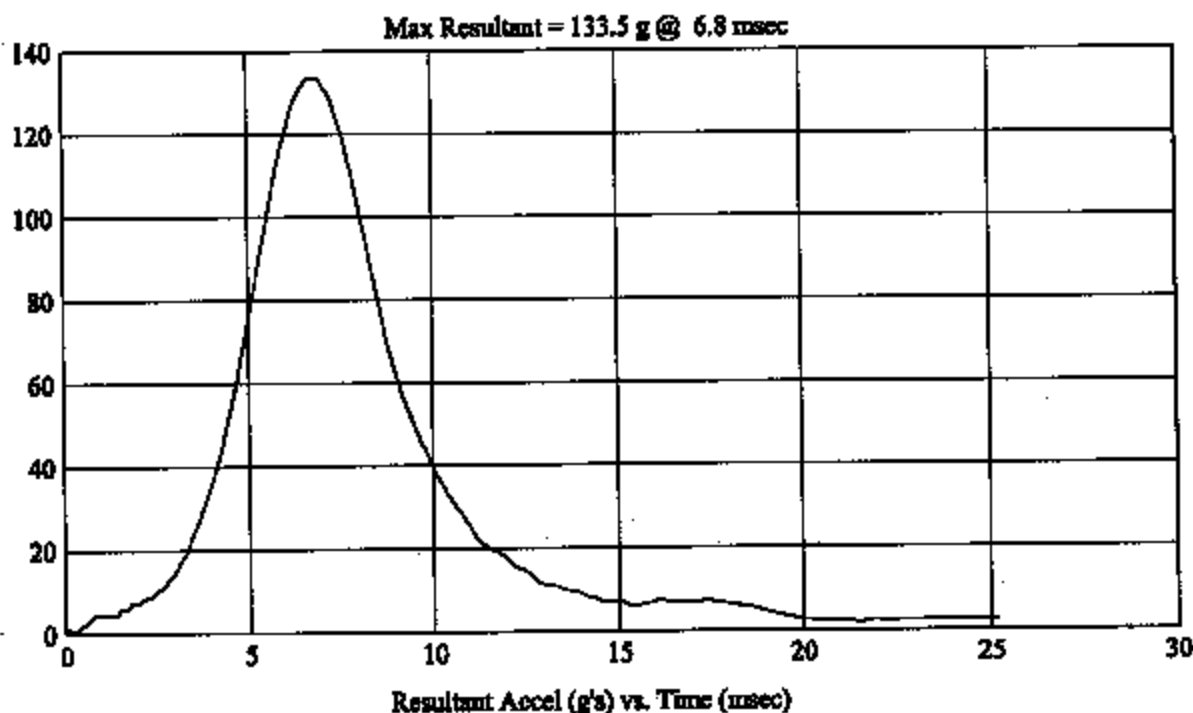
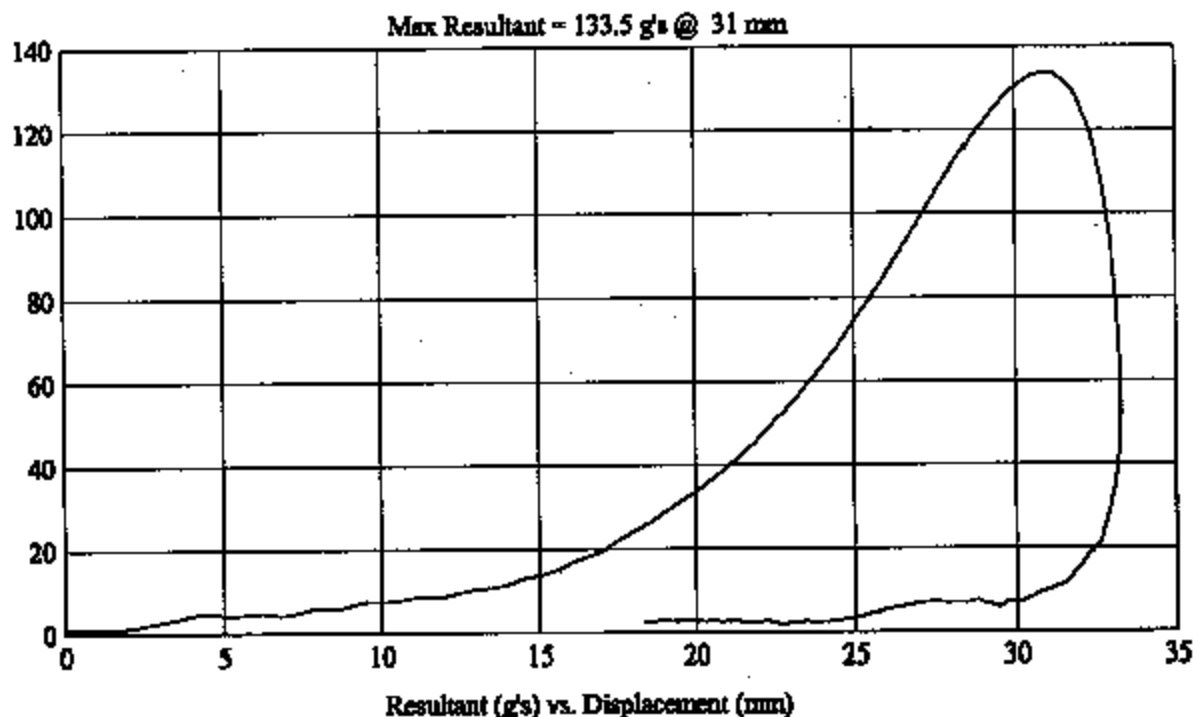
FMH
G0417-001.5Customer: NISSAN
Test # 7
FM4077
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: SR2(s)
Vehicle Side: Right
Horz/Vert Angle: 90/50

Test Date: 4/7/04

HIC(d) = 531, HIC = 483, Delta T = 4.3 msec



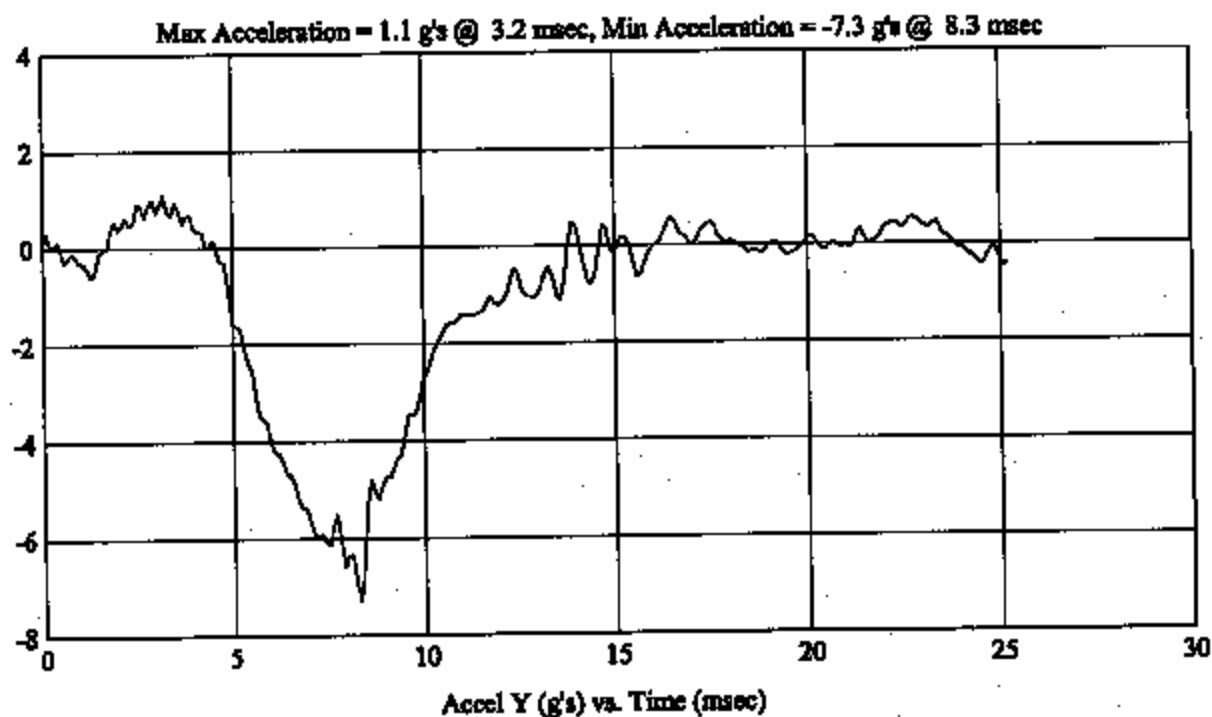
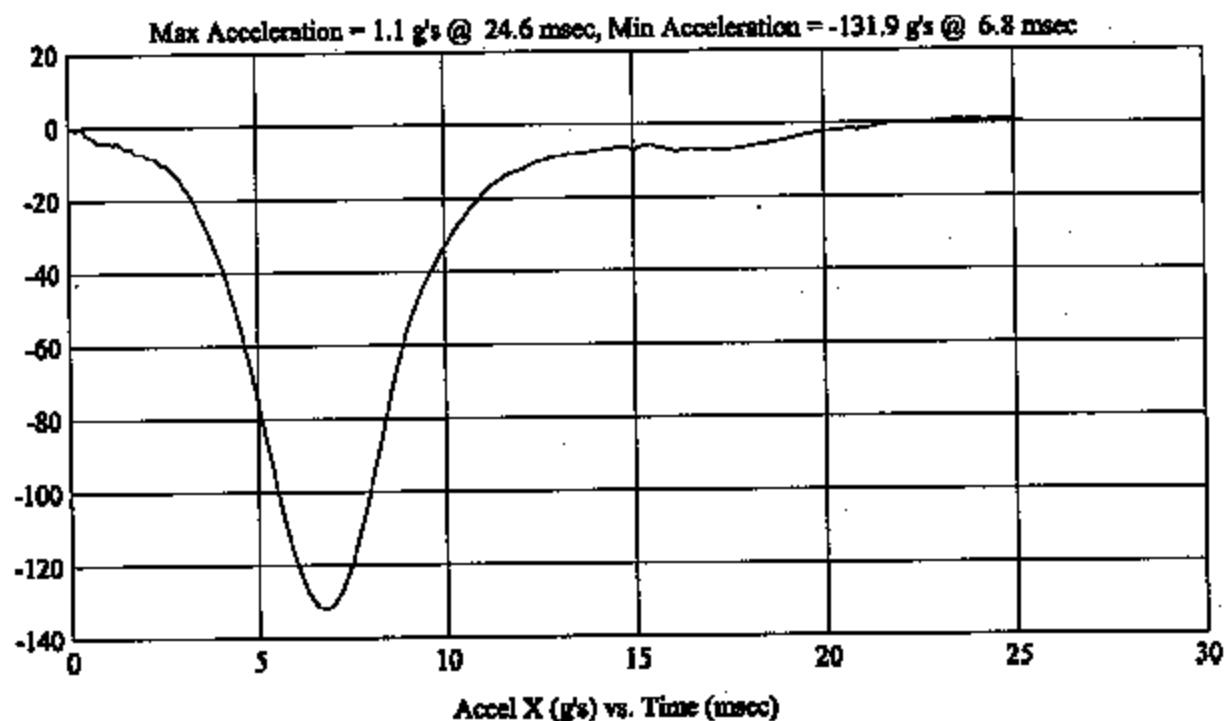
FMH
G04I7-001.5Customer: NISSAN
Test # 7
FM4077
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: SR2(s)
Vehicle Side: Right
Horz/Vert Angle: 90/50

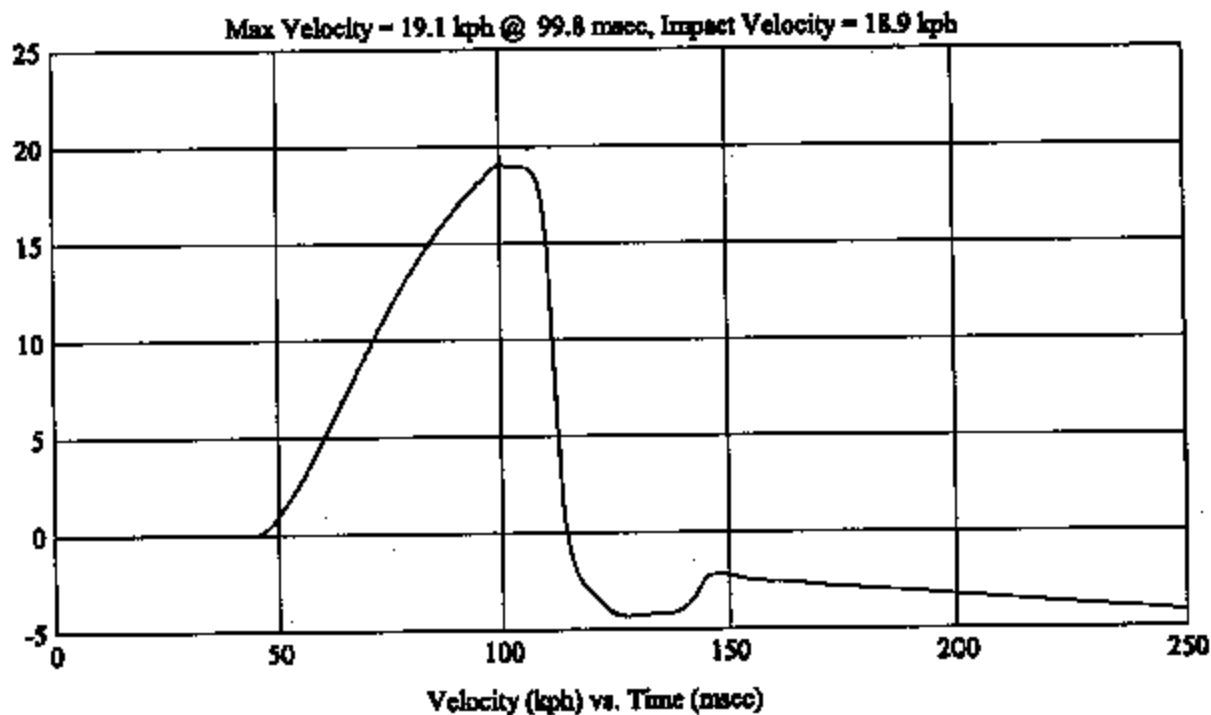
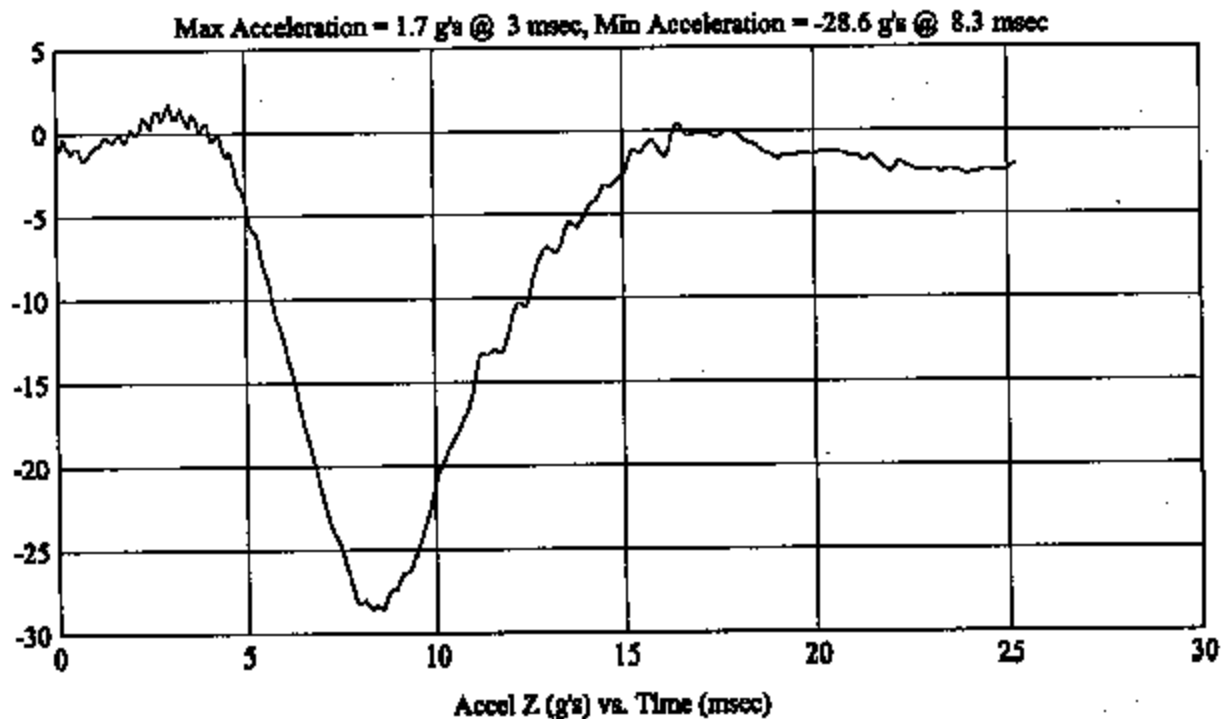
Test Date: 4/7/04

HIC(d) = 531, HIC = 483, Delta T = 4.3 msec



FMH
G0417-001.5Customer: NISSAN
Test # 7
FM4077
Additional Desc: N/A

Vehicle Program : TITAN

Test Date: 4/7/04
HIC(d) = 531, HIC = 483, Delta T = 4.3 msecModel Year: 2004
Target: SR2(a)
Vehicle Side: Right
Horz/Vert Angle: 90/50

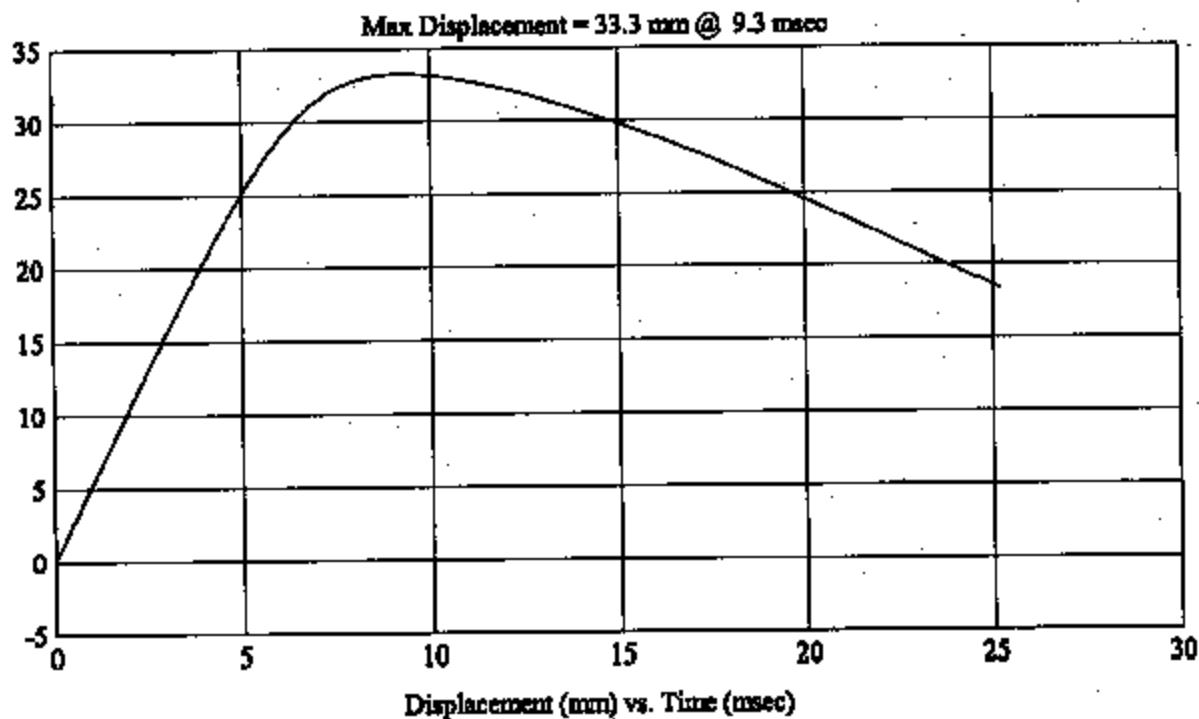
FMH
G04I7-001.5Customer: NISSAN
Test # 7
FM4077
Additional Desc: N/A

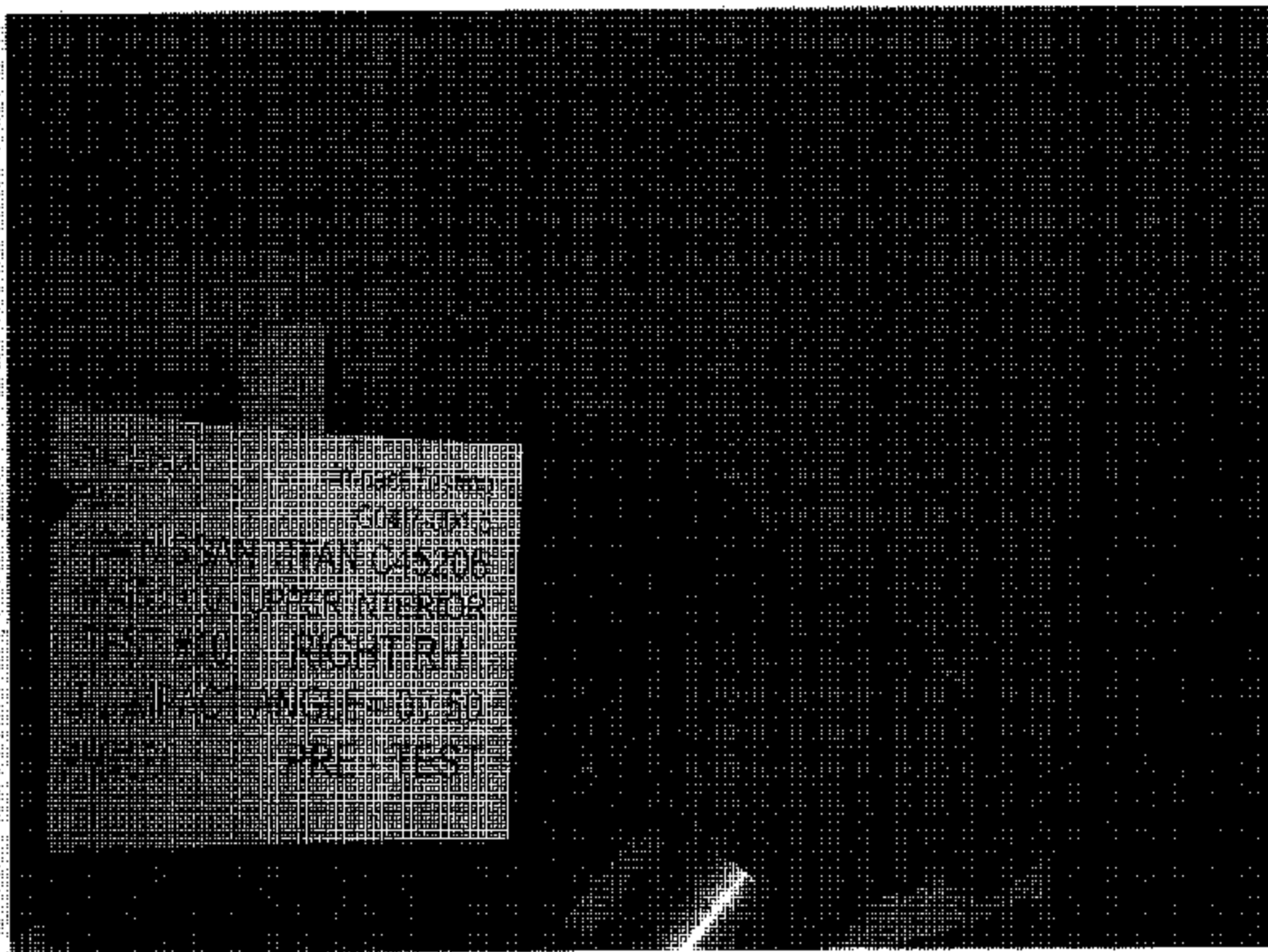
Vehicle Program: TITAN

Model Year: 2004
Target: SR2(a)
Vehicle Side: Right
Horz/Vert Angle: 90/50

Test Date: 4/7/04

HIC(d) = 531, HIC = 483, Delta T = 4.3 msec





104 NISSAN TEAN GLENN
WAS ON UPPER RIB
LEFT #10 RIGHT RH
HEAD ANGLE 170
0420 0051 0052

1. The Nissan Titan is a
medium-duty pickup truck
with a 3000 cc engine
and a payload capacity of 10,000
pounds.

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DOC. NO.: MGATP201U_FRAME #2
REVISION NO.: 3
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: 60477-001.5 VEHICLE YR/MAKE/MODEL: 2004/Nissan/Titan

GENERAL TEST PARAMETERS:

Target (Vehicle Side): left/right RH

MGA Test Reference No.: FMH080

Approach Angles: Horizontal 0°

Vertical 50°

Test Number: 10

Temperature: 25 °F 0

Humidity: 24 %

Time of Test: 4:00 am/pm pm

FMH Serial No: 35

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pl. O	Left/Right Pt. O
548	506	11.7	23.3	7	7

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35924	-91.8	1.20	1.20
Y	6	J35919	93.5	1.23	1.23
Z	7	J31051	93.5	1.51	1.51

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

no visible damage

Recorded By: [Signature] Approved By: [Signature] Date: 4-7-04

*Only necessary for NHTSA (Government) Compliance testing.

FMH
G04I7-001.5Customer: NISSAN
Test # 10
FM4080
Additional Desc: N/A

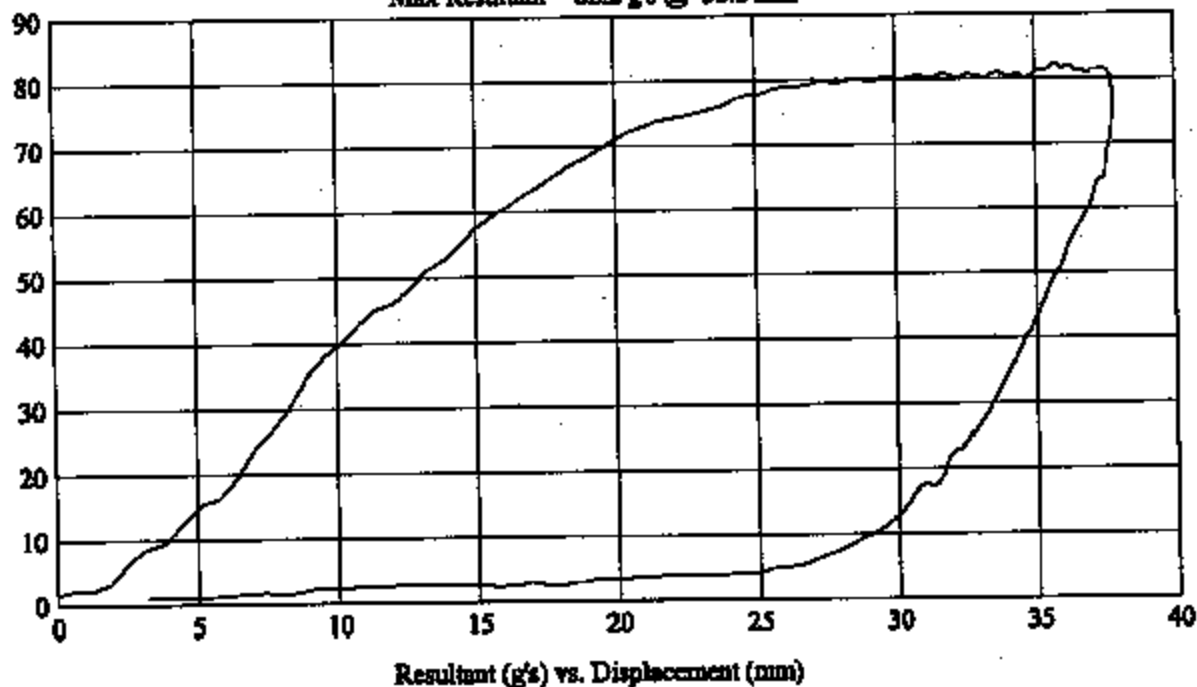
Vehicle Program : TITAN

Model Year: 2004
Target: RH
Vehicle Side: Right
Horz/Vert Angle: 0/50

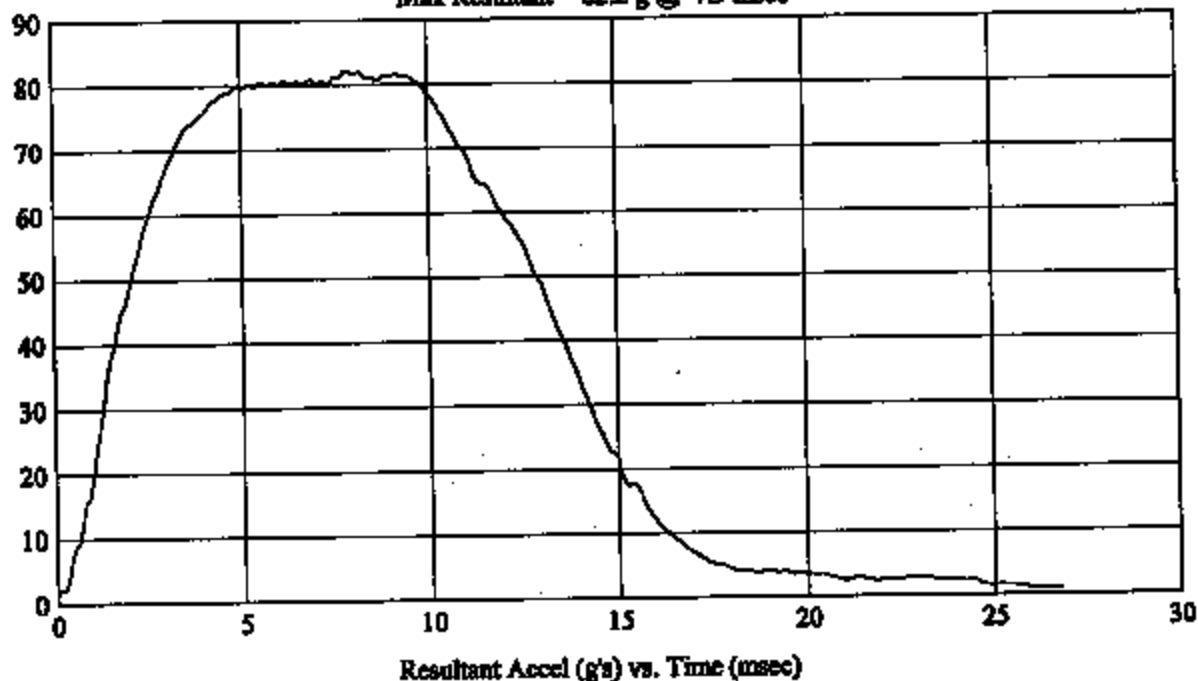
Test Date: 4/7/04

HIC(d) = 548, HIC = 506, Delta T = 11.7 msec

Max Resultant = 82.2 g's @ 35.8 mm



Max Resultant = 82.2 g @ 7.9 msec



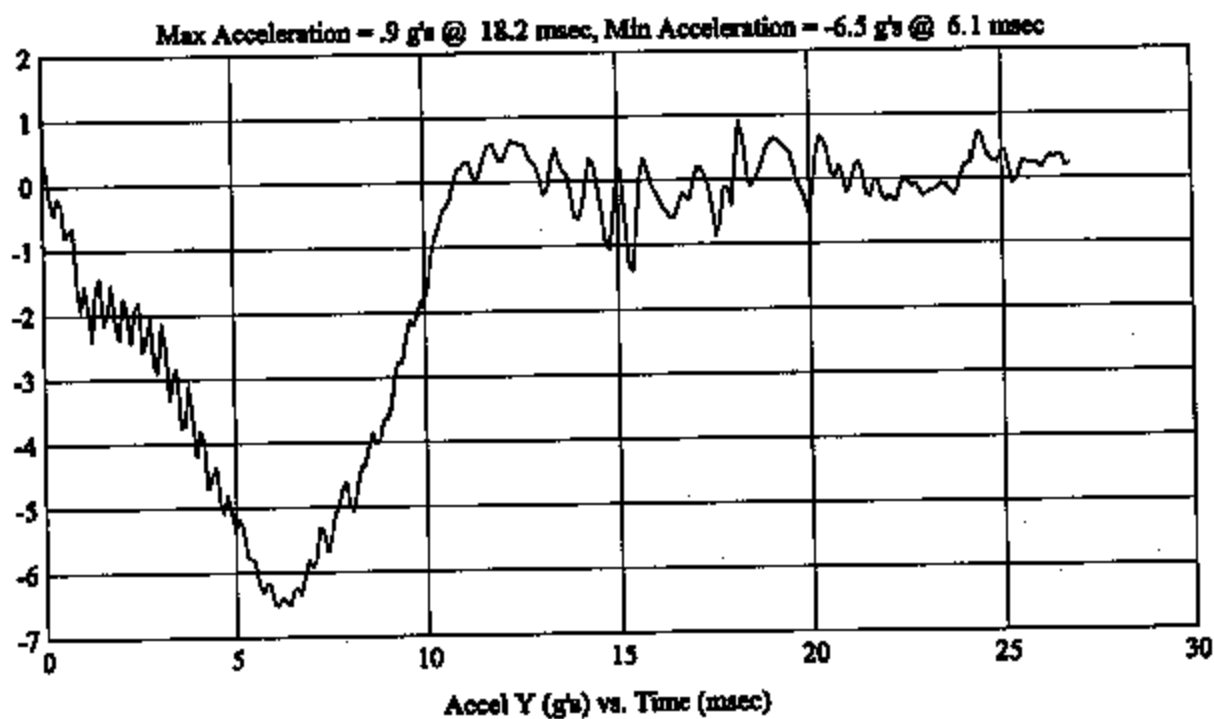
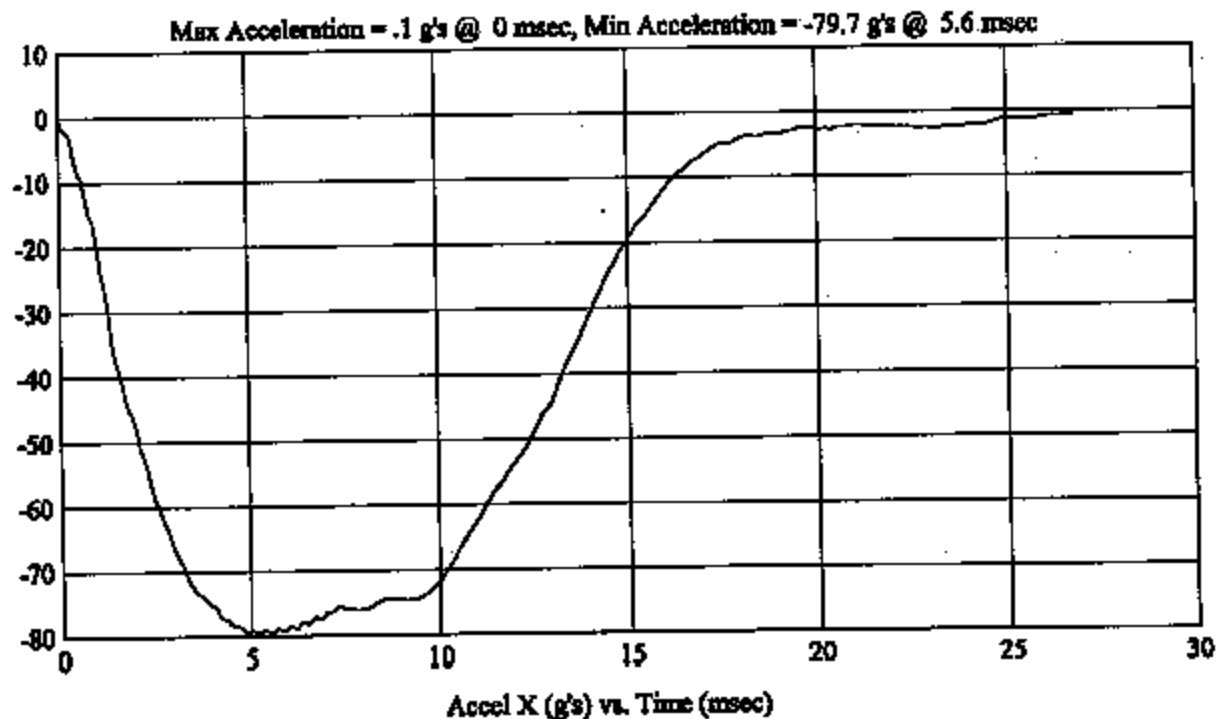
FMH
G0417-001.5Customer: NISSAN
Test # 10
FM4080
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: RH
Vehicle Side: Right
Horz/Vert Angle: 0/50

Test Date: 4/7/04

HIC(d) = 548, HIC = 506, Delta T = 11.7 msec



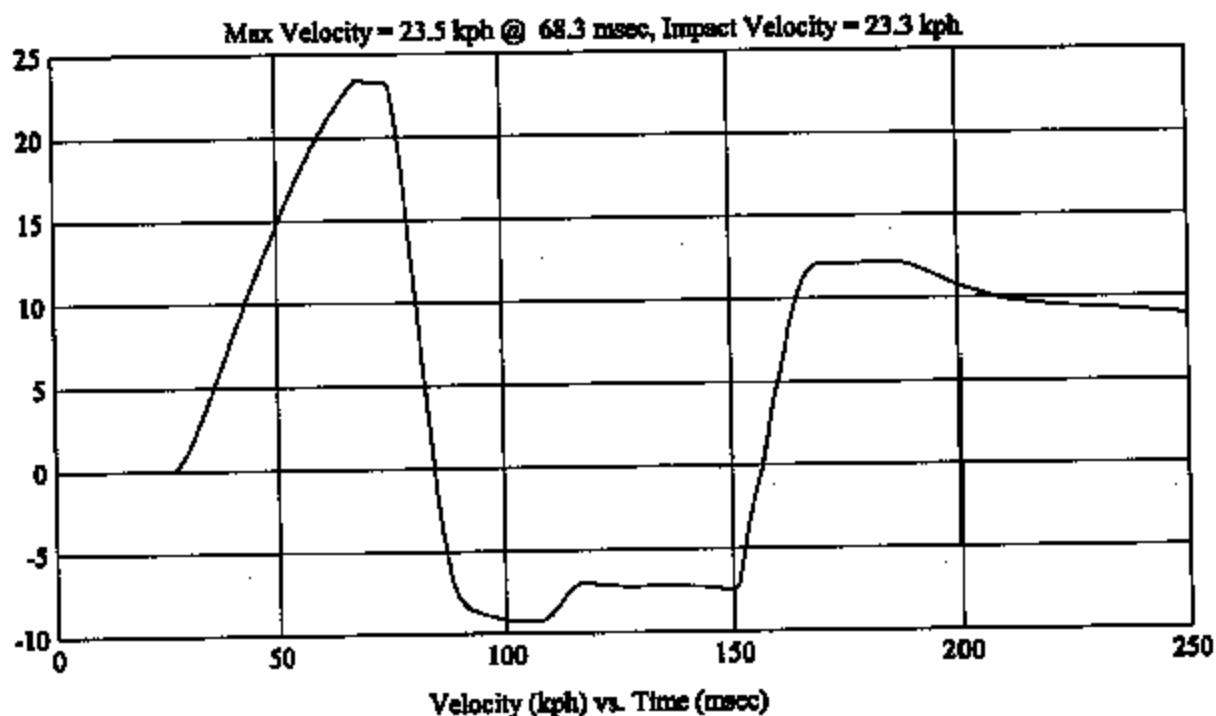
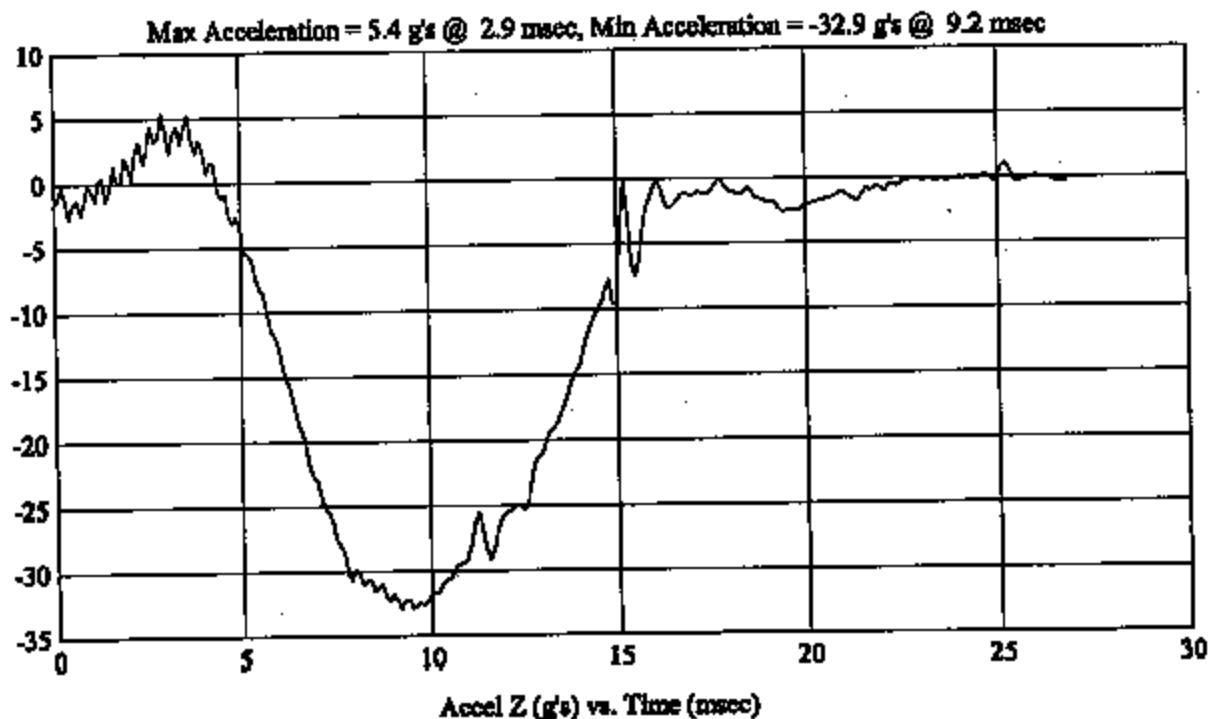
FMH
G04I7-001.5Customer: NISSAN
Test # 10
FM4080
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: RH
Vehicle Side: Right
Horz/Vert Angle: 0/50

Test Date: 4/7/04

HIC(d) = 548, HIC = 506, Delta T = 11.7 msec



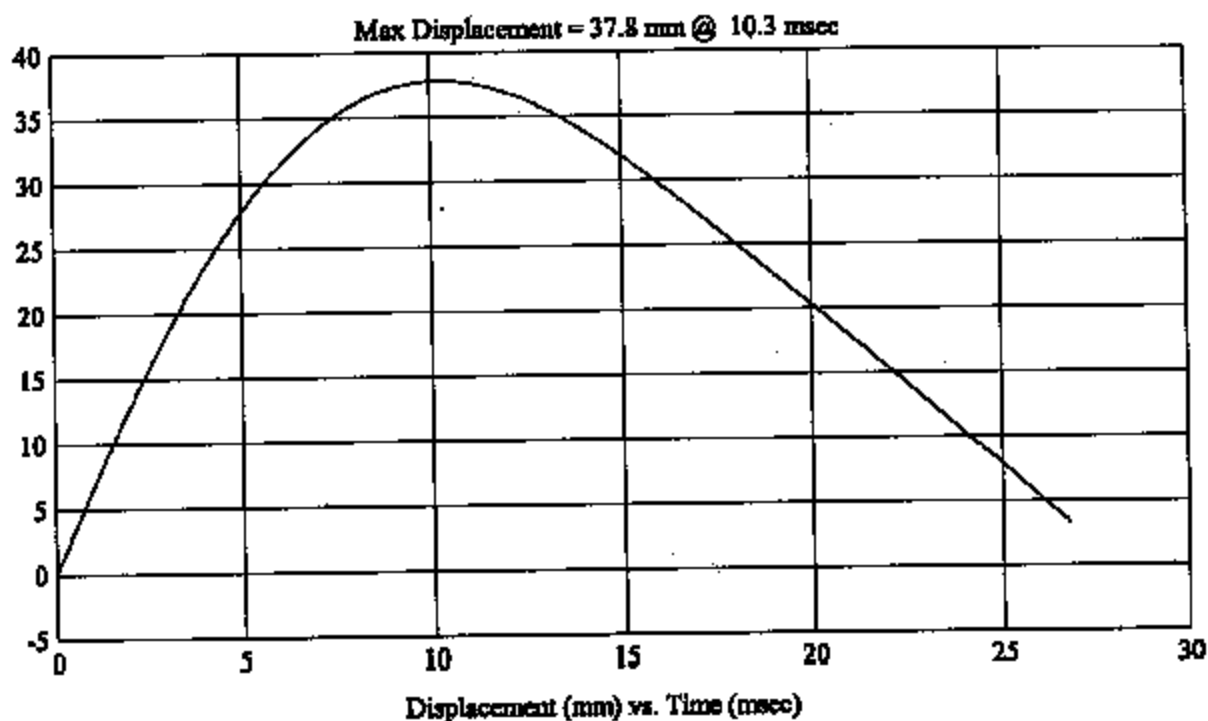
FMH
G04I7-001.5Customer: NISSAN
Test # 10
FM4080
Additional Desc: N/A

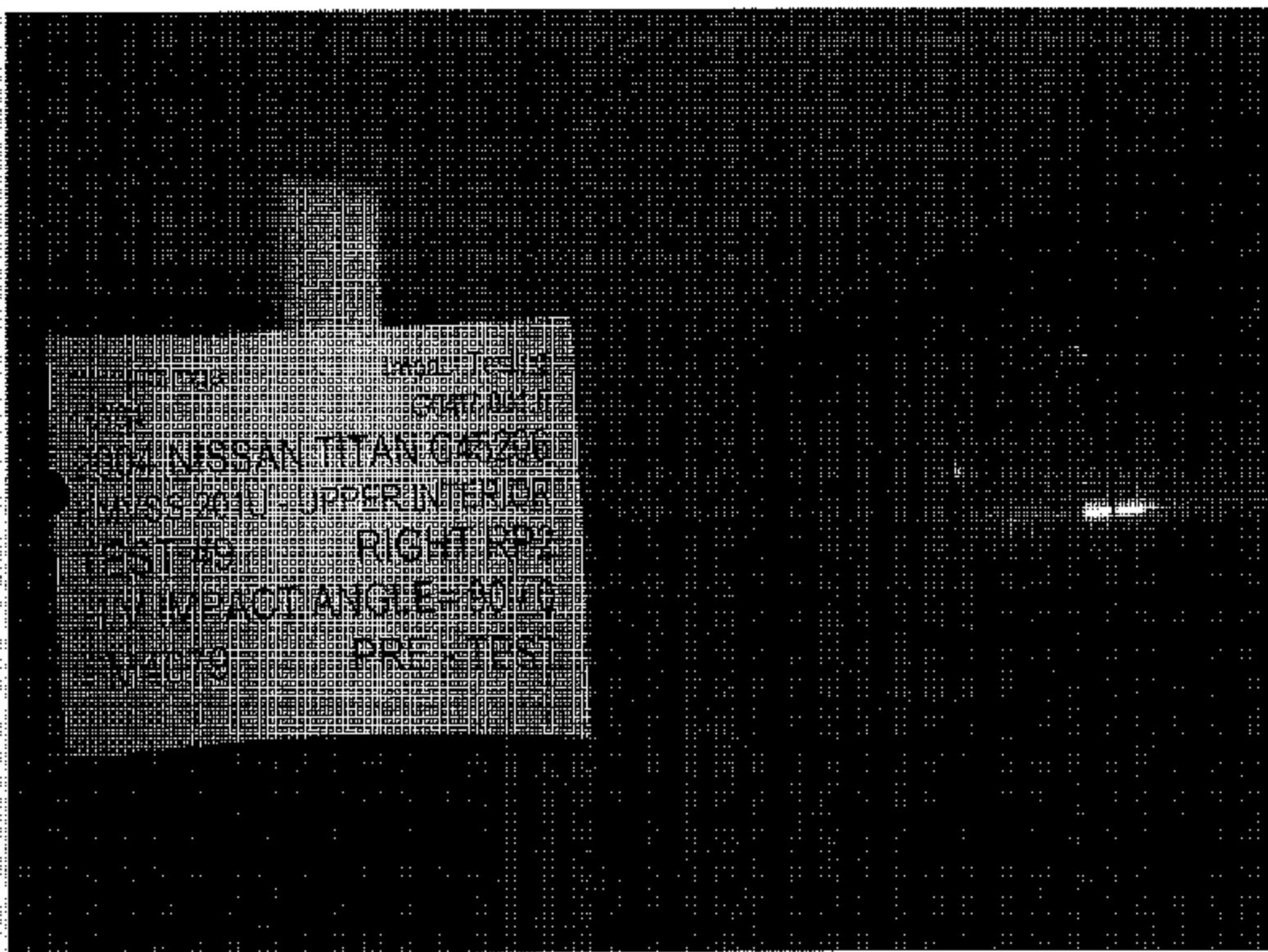
Vehicle Program : TITAN

Model Year: 2004
Target: RH
Vehicle Side: Right
Horz/Vert Angle: 0/50

Test Date: 4/7/04

HIC(d) = 548, HIC = 506, Delta T = 11.7 msec





1. 平 地 田 間 作 業

THE

王 强

Figure 1

[illegible]

THE

700-198A-N

THE UNIVERSITY OF CHICAGO PRESS

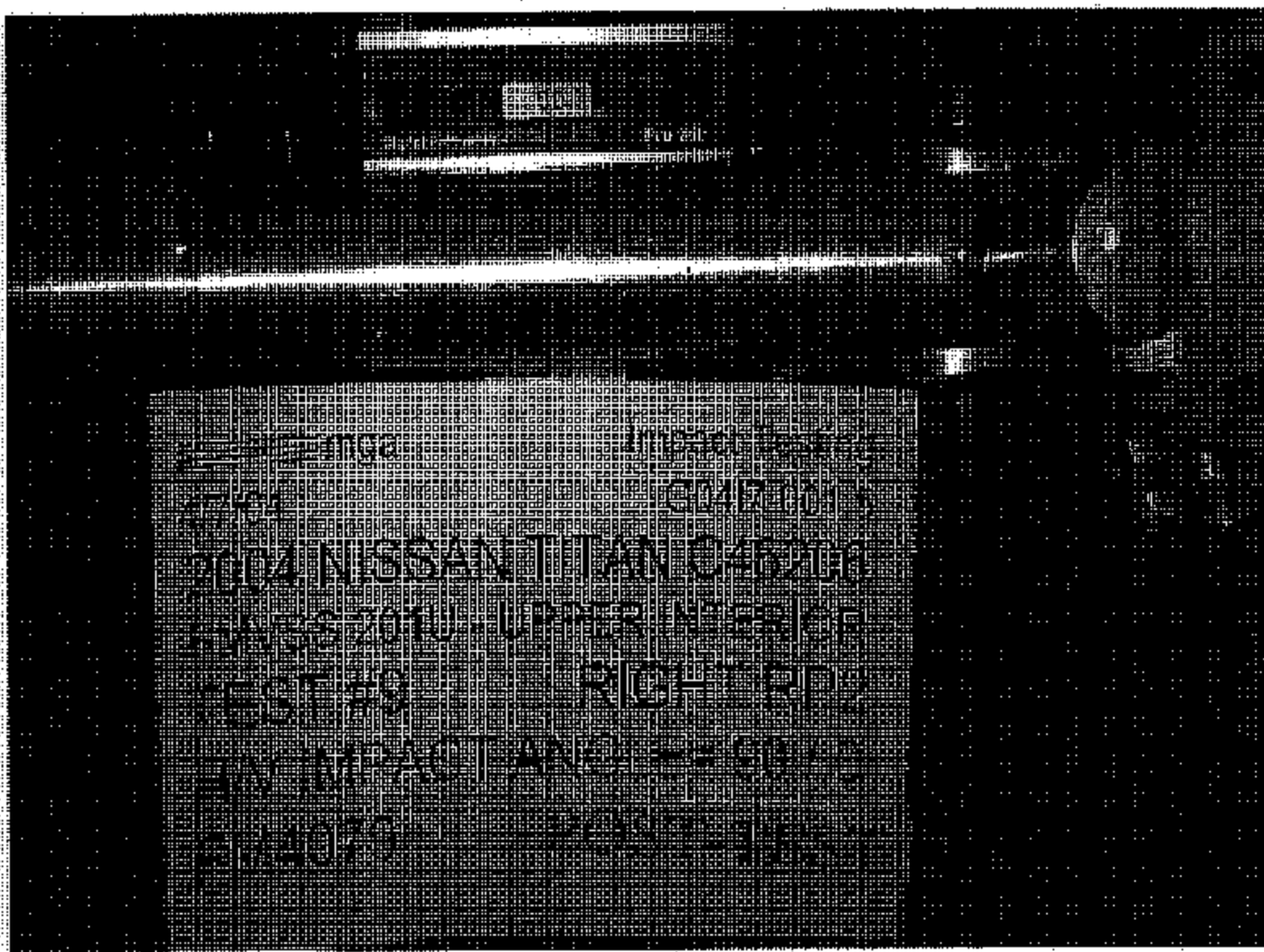
THE 2010 PAPER

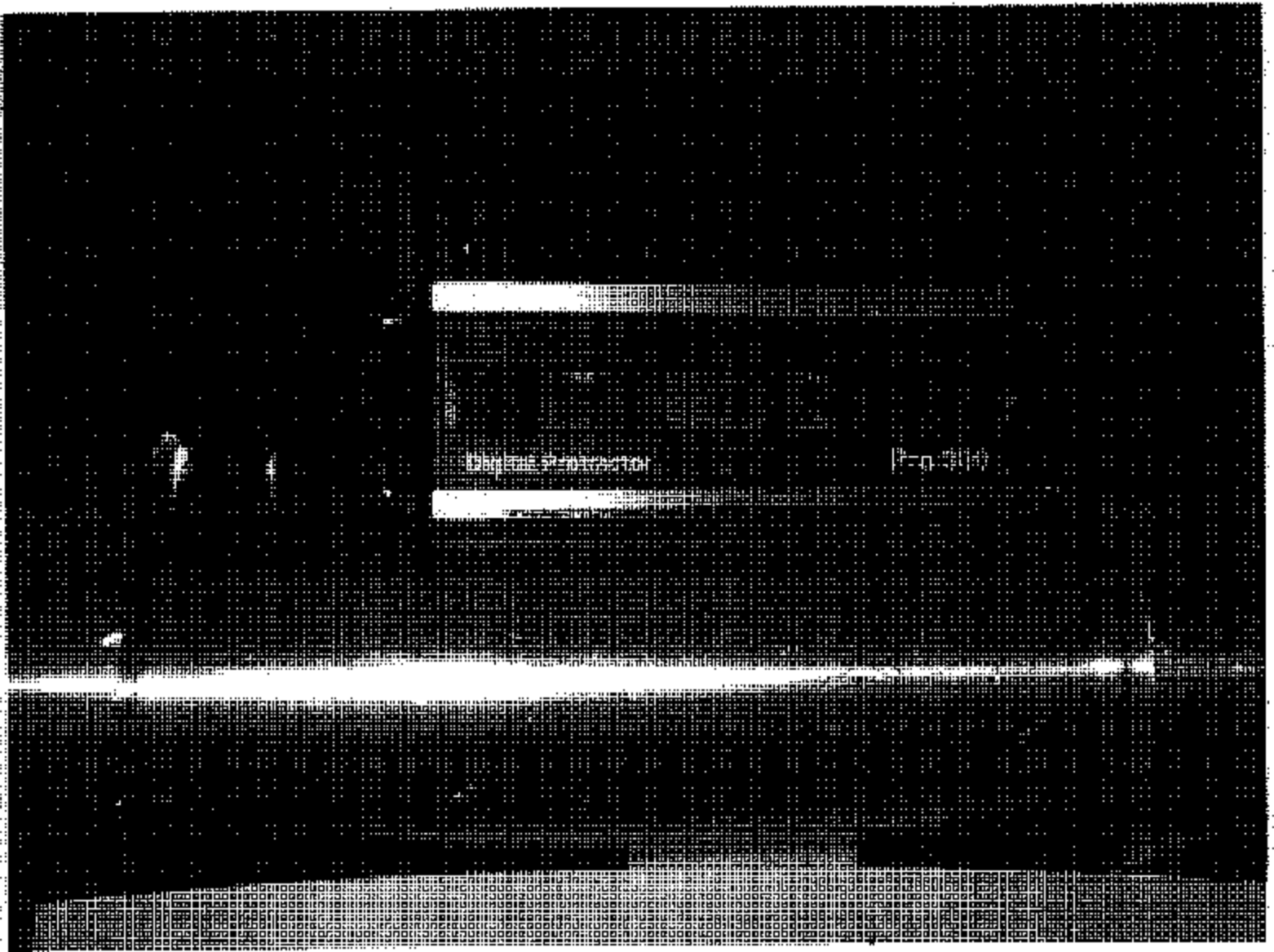
WMPAC 2010

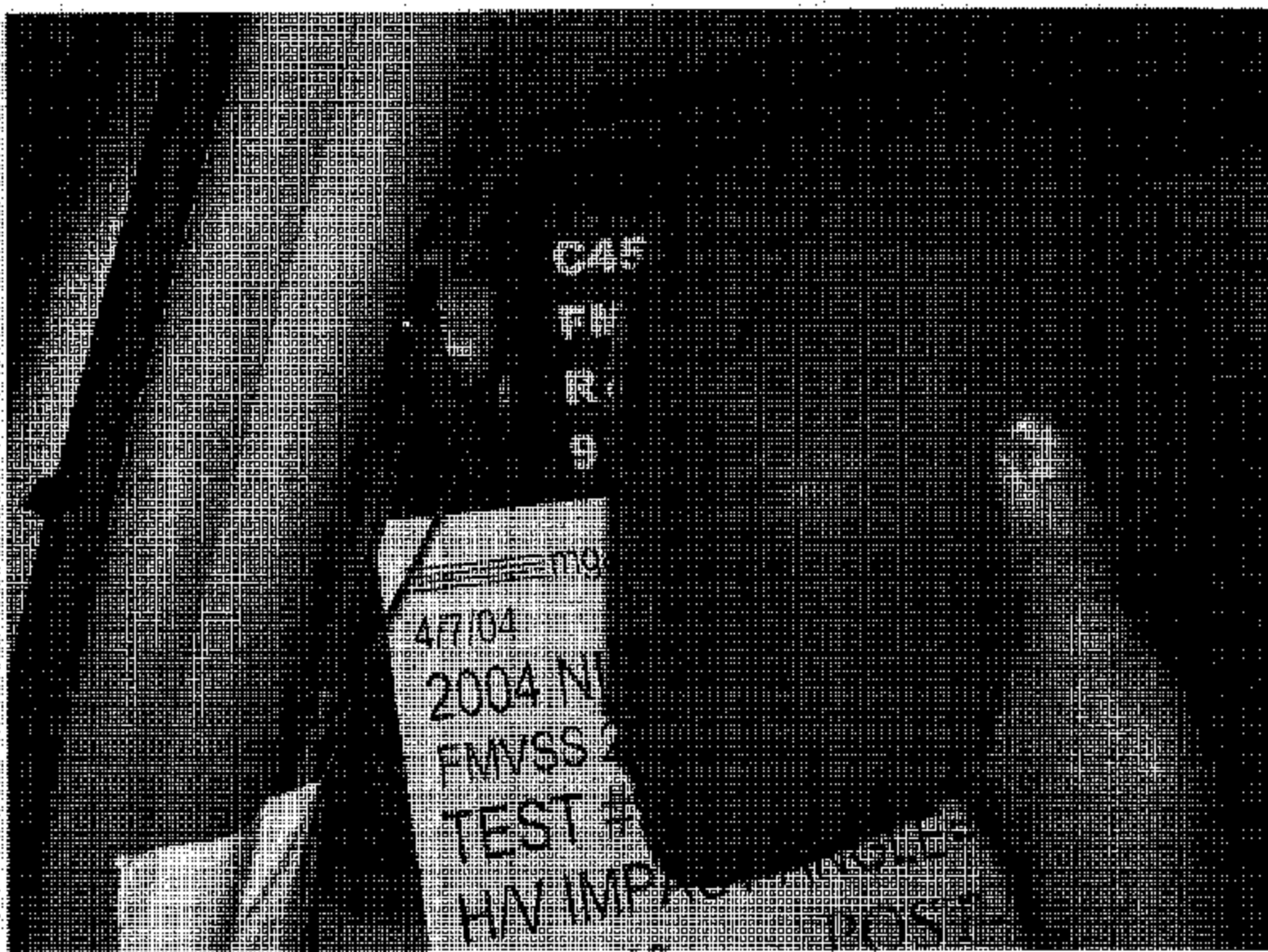
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 104

Impact Test ID
C0471013
2008 NISSAN TITAN C45206
2008 2MU UPPER INTERIOR
LEFT / 0 RIGHT RP2
IMPACT ANGLE = 90 / 0
POSITION

NISSAN ANGLES
LEFT SIDE
RIGHT SIDE
IMPACT ANGLE 90 TO
180 DEGREE









MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DOC. NO.: MGATP201U_FRAME #2
REVISION NO.: 3
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: 60477-001.5 VEHICLE YR/MAKE/MODEL: 2004 / Nissan / Titan

GENERAL TEST PARAMETERS:

Target (Vehicle Side): left/right RP2

MGA Test Reference No.: FM4079

Approach Angles: Horizontal 90 °

Vertical 0 °

Test Number: 9

Temperature: 25 °F/°C

Humidity: 24 %

Time of Test: 3:00 am/pm

FMH Serial No: 38

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pl. O	Left/Right Pl. O
1042	1160	4.0	23.8	13	3

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J36197	-107.3	1.20	1.20
Y	6	J36193	101.1	1.23	1.23
Z	7	J36353	97.1	1.51	1.51

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

no vis.ble damage

APPARENT TEST FAILURE

Recorded By: [Signature] Approved By: [Signature] Date: 4-7-04

*Only necessary for NHTSA (Government) Compliance testing.

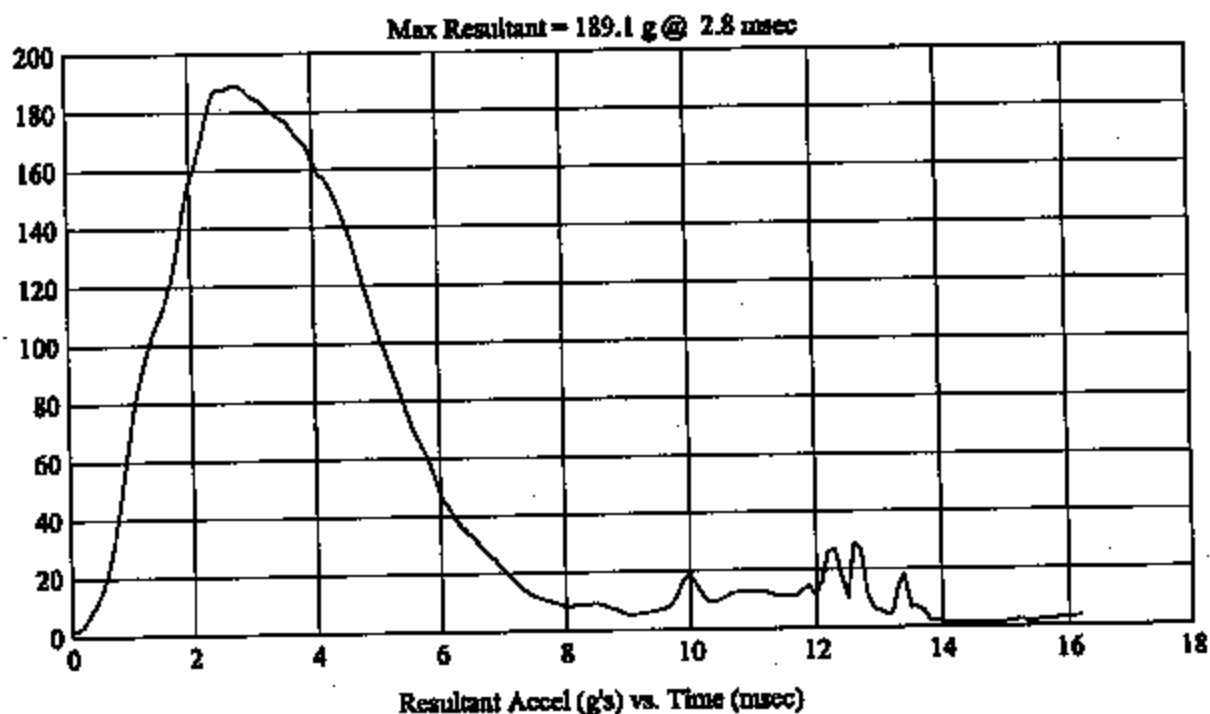
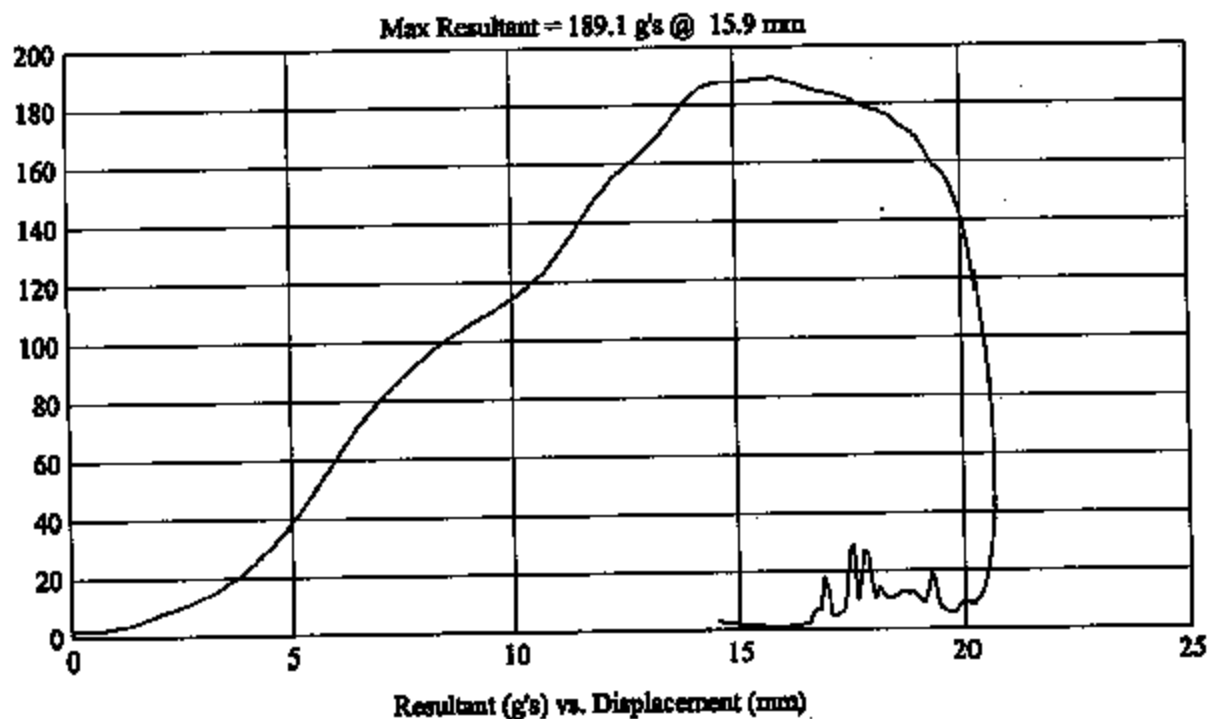
FMH
G04I7-001.5Customer: NISSAN
Test # 9
FM4079
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: RP2
Vehicle Side: Right
Horz/Vert Angle: 90/0

Test Date: 4/7/04

HIC(d) = 1042, HIC = 1160, Delta T = 4 msec



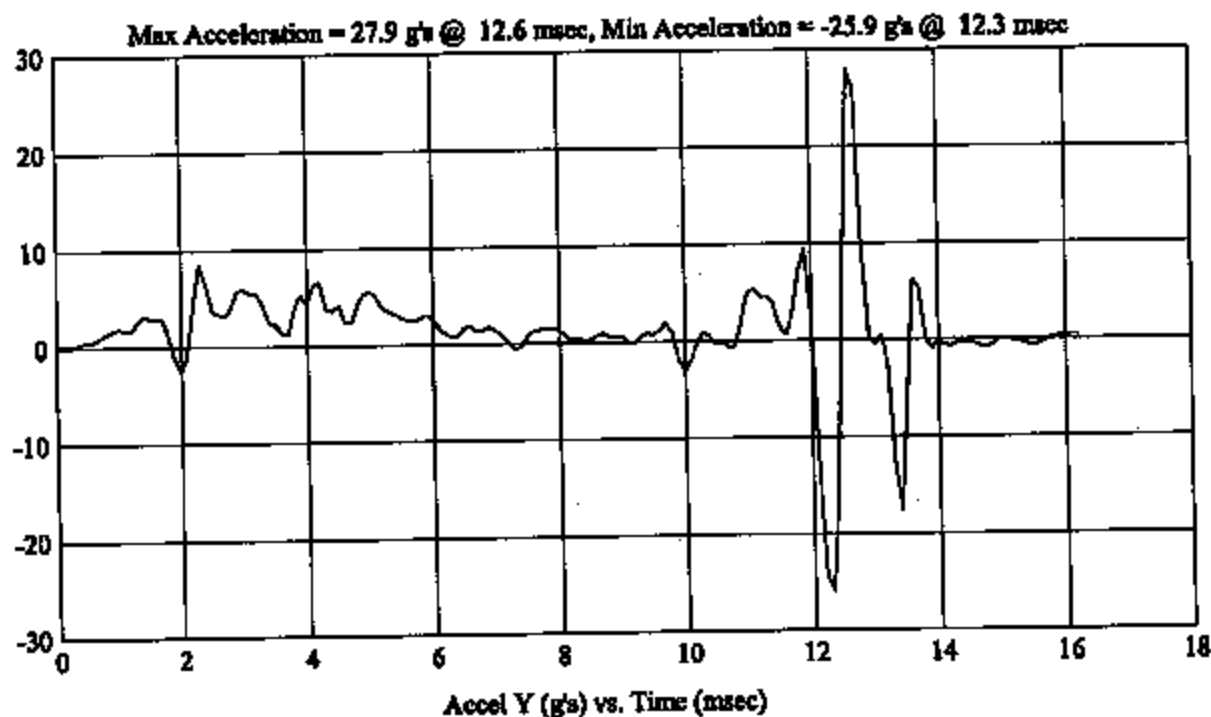
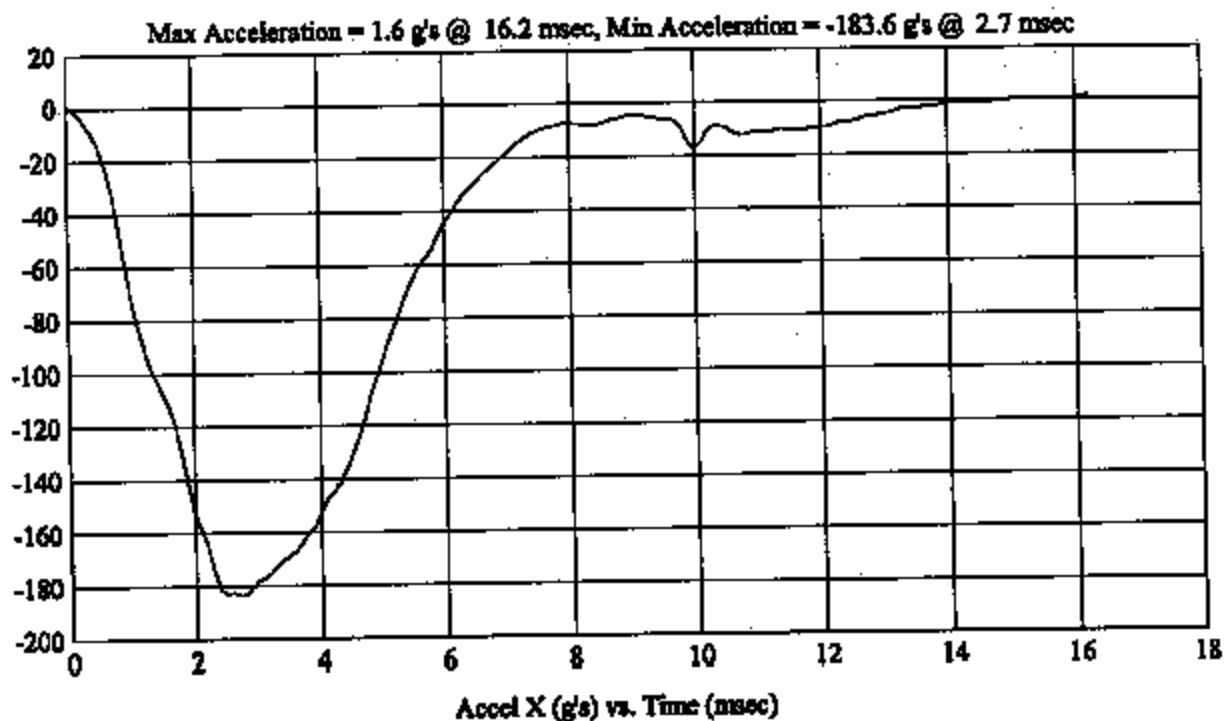
FMH
G04I7-001.5Customer: NISSAN
Test # 9
FM4079
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: RP2
Vehicle Side: Right
Horz/Vert Angle: 90/0

Test Date: 4/7/04

HIC(d) = 1042, HIC = 1160, Delta T = 4 msec



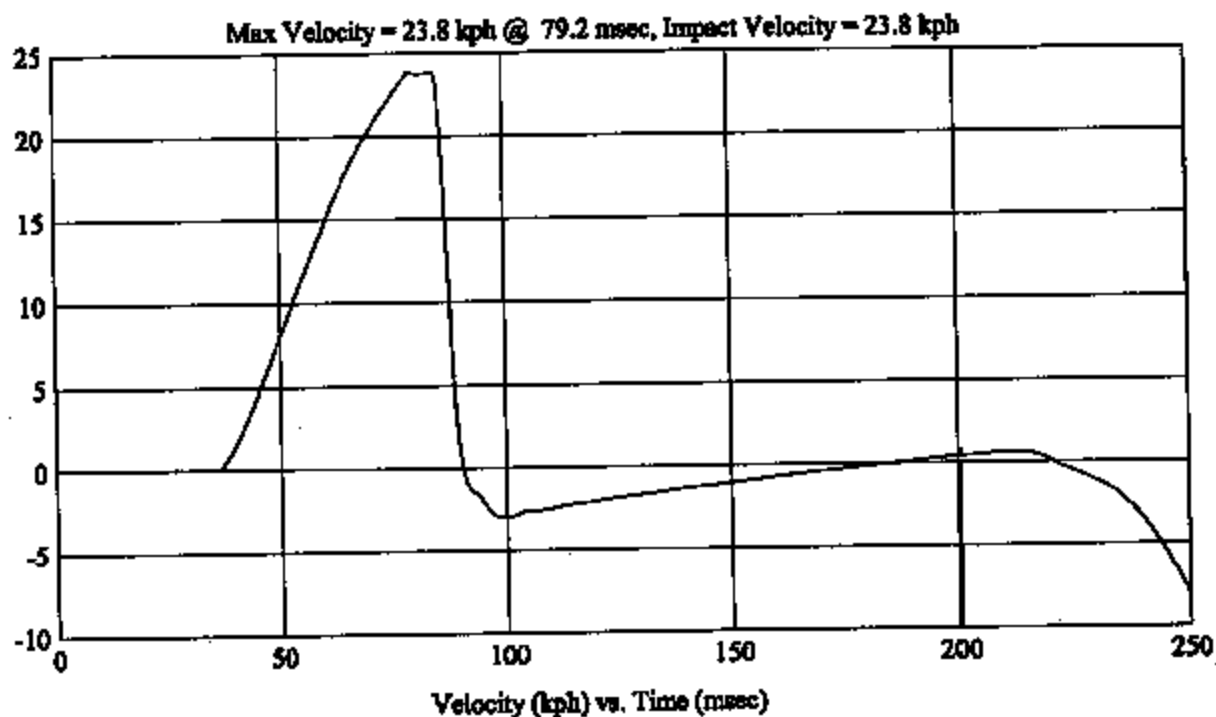
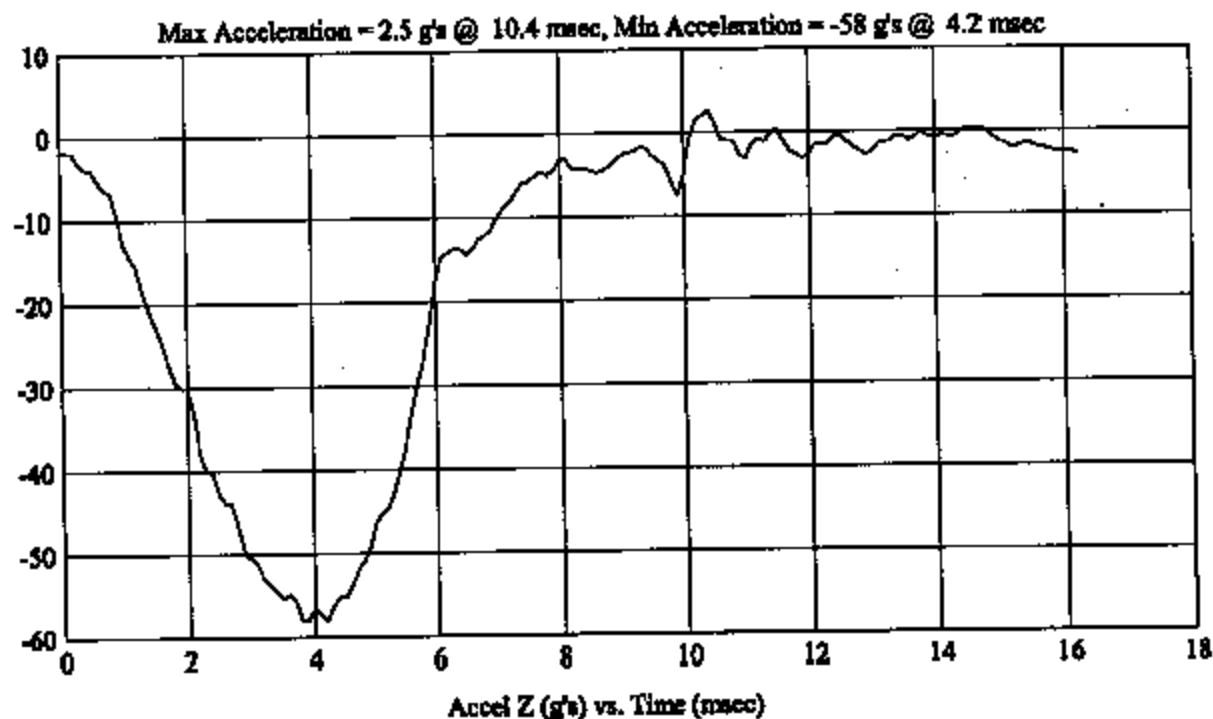
FMH
G0417-001.5Customer: NISSAN
Test # 9
FM4079
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: RP2
Vehicle Side: Right
Horz/Vert Angle: 90/0

Test Date: 4/7/04

HIC(6) = 1042, HIC = 1160, Delta T = 4 msec



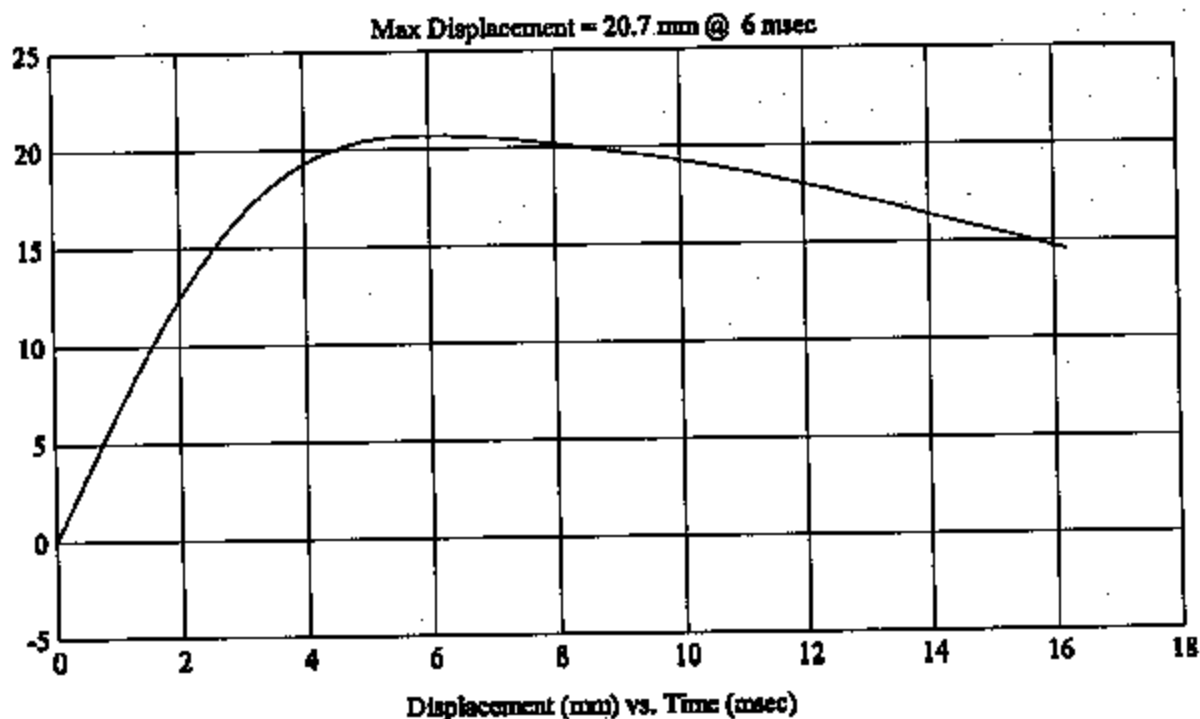
FMH
G0417-001.5Customer: NISSAN
Test # 9
FM4079
Additional Desc: N/A

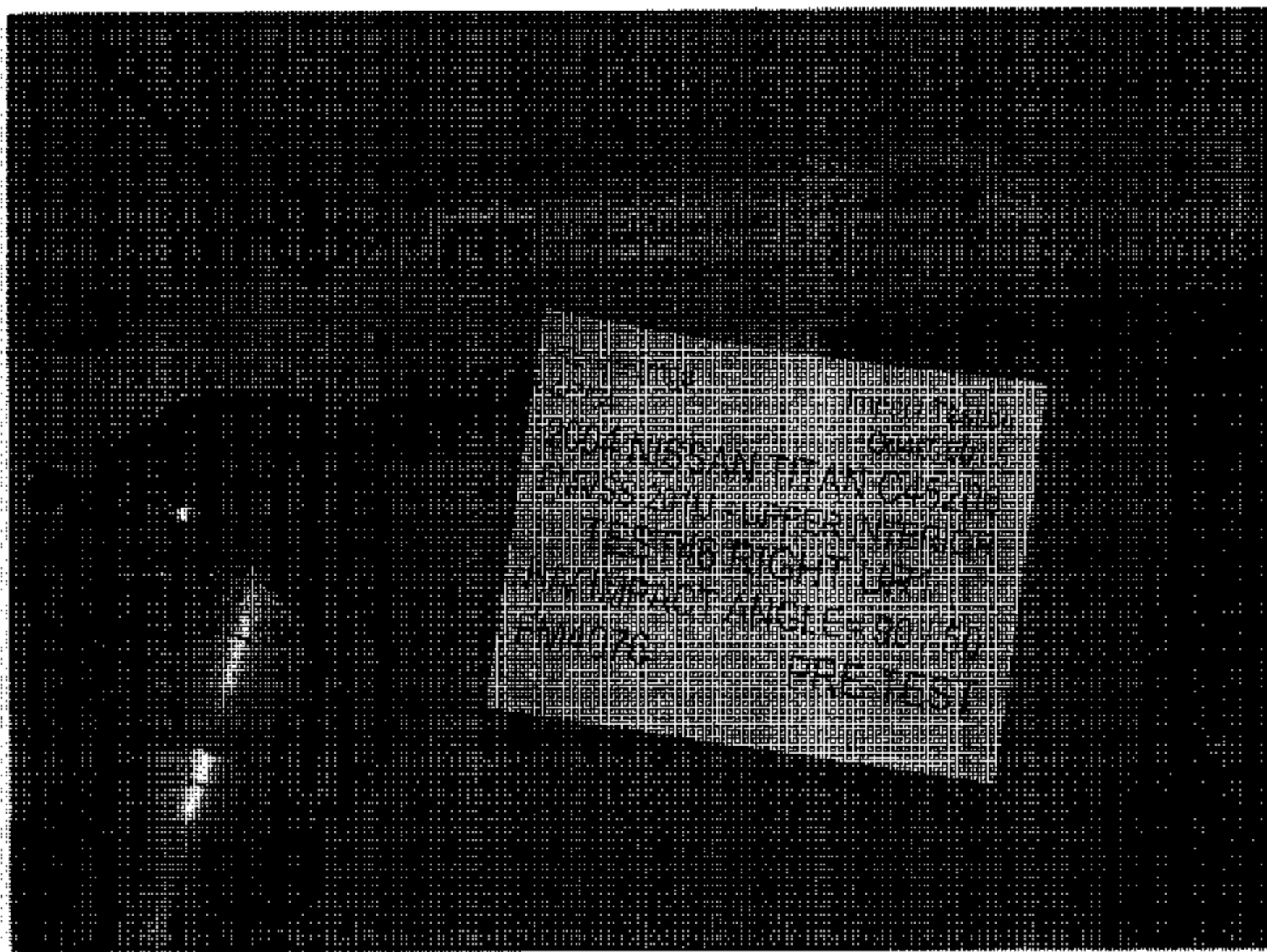
Vehicle Program : TITAN

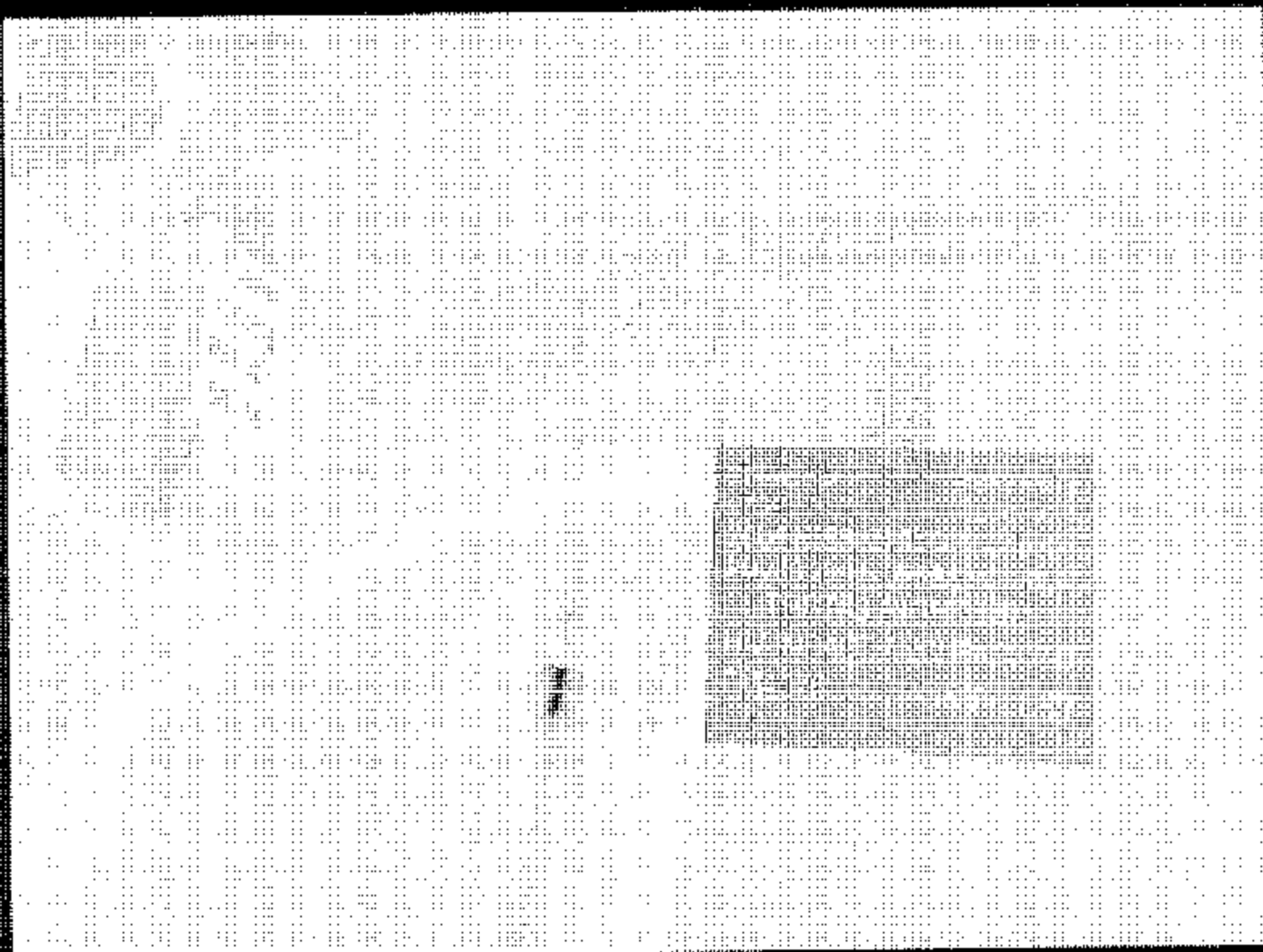
Model Year: 2004
Target: RP2
Vehicle Side: Right
Horz/Vert Angle: 90/0

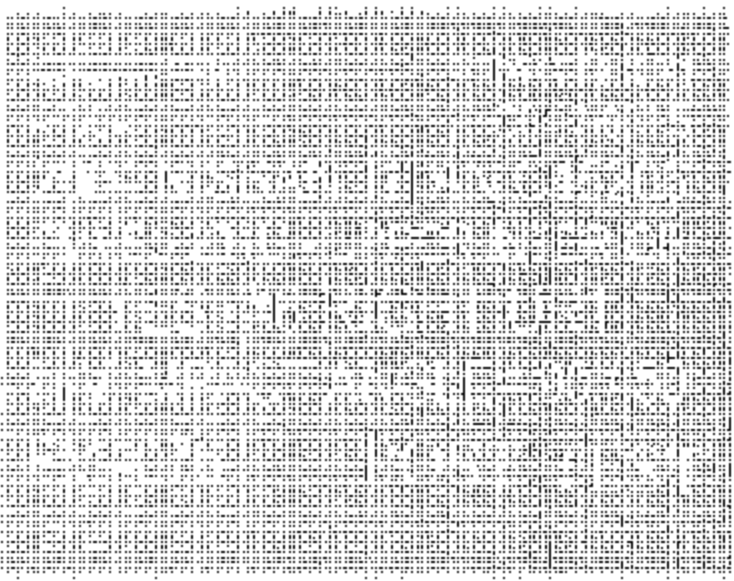
Test Date: 4/7/04

HIC(d) = 1042, HIC = 1160, Delta T = 4 msec









1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DOC. NO.: MGATP201U_FRAME #2
REVISION NO.: 5
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: C45206 VEHICLE YR/MAKE/MODEL: 2004 NISSAN TITAN

GENERAL TEST PARAMETERS: Test Number: 6

Target (Vehicle Side): left/right UR1 Temperature: 24 °F

MGA Test Reference No.: FM4076 Humidity: 24 %

Approach Angles: Horizontal 90 ° Time of Test: 8:25 am/pm

Vertical 50 ° FMH Serial No: 3638

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pl. O	Left/Right Pl. O
645	634	7.4	23.5	26	3

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	336197 <u>336197</u> HK	-107.3 <u>-99.2</u> HK	1-20	1-20
Y	6	336193 <u>336193</u> HK	101.1 <u>99.6</u> HK	1-23	1-23
Z	7	336353 <u>336353</u> HK	97.1 <u>97.1</u> HK	1-51	1-51

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

NO VISIBLE DAMAGE

Recorded By: [Signature] Approved By: Heleen A. Kalish Date: 4/7/04

*Only necessary for NHTSA (Government) Compliance testing.

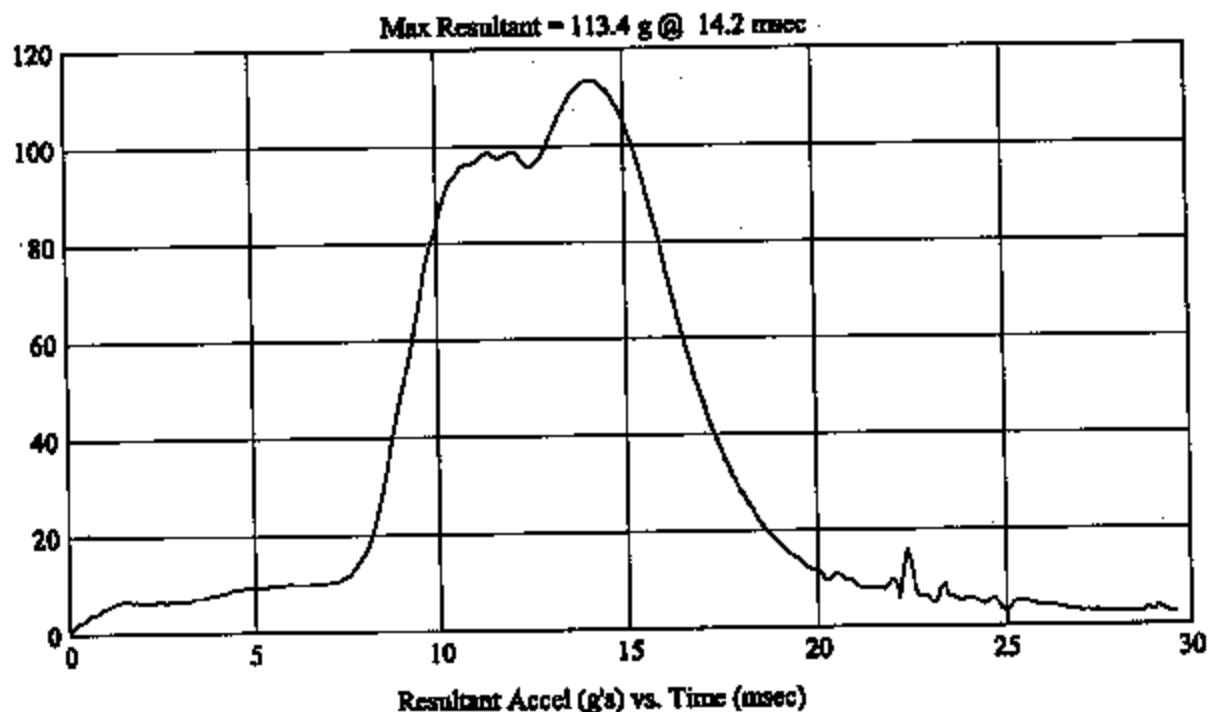
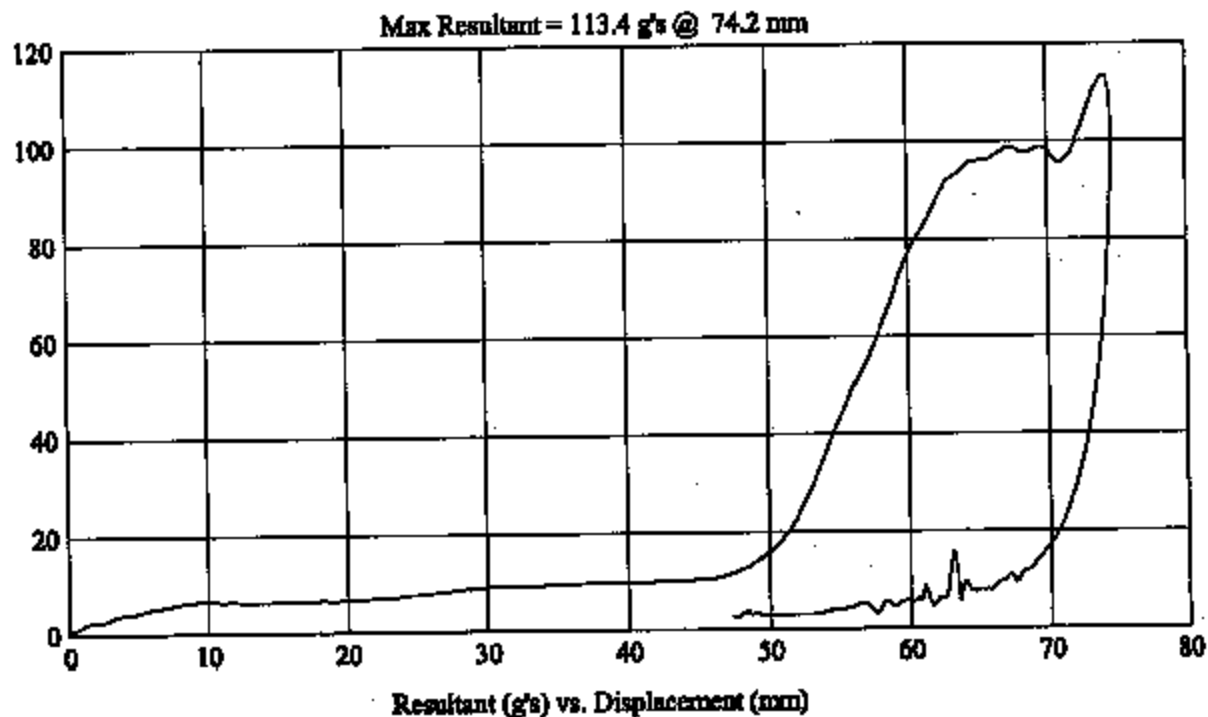
FMH
G04I7-001.5Customer: NISSAN
Test # 6
FM4076
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR1
Vehicle Side: Right
Horz/Vert Angle: 90/50

Test Date: 4/7/04

HIC(d) = 645, HIC = 634, Delta T = 7.4 msec



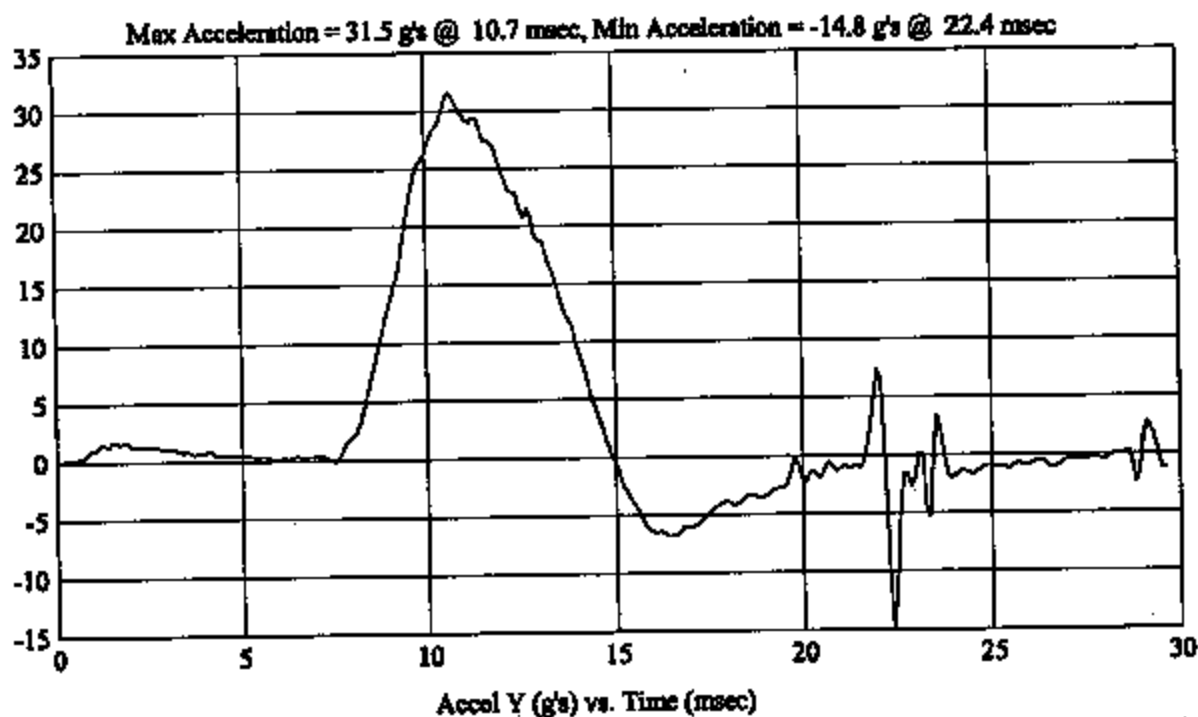
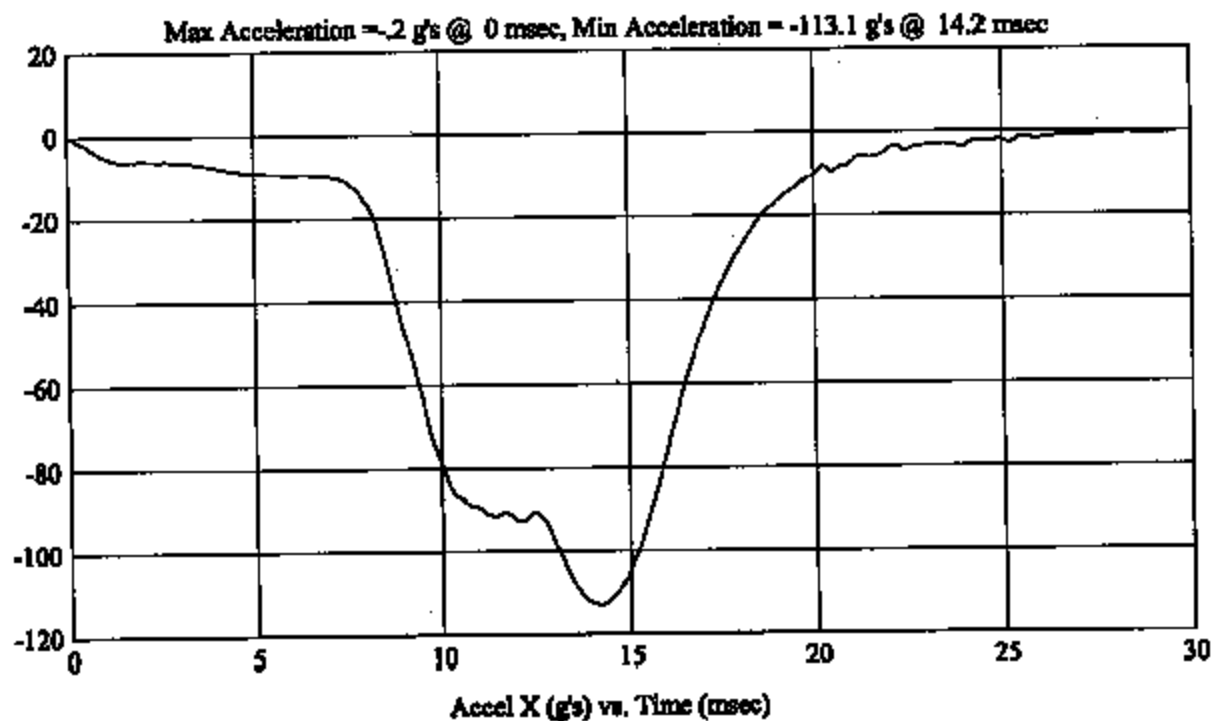
FMH
G0417-001.5Customer: NISSAN
Test # 6
FM4076
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR1
Vehicle Side: Right
Horz/Vert Angle: 90/50

Test Date: 4/7/04

HIC(d) = 645, HIC = 634, Delta T = 7.4 msec



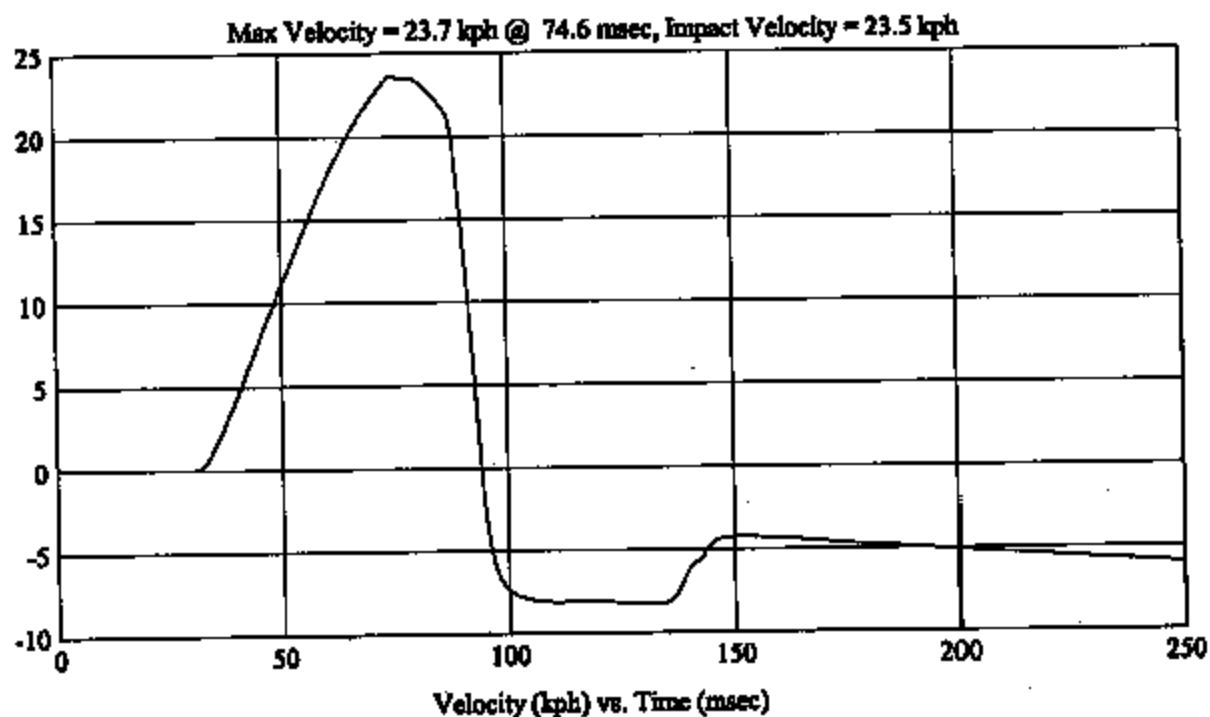
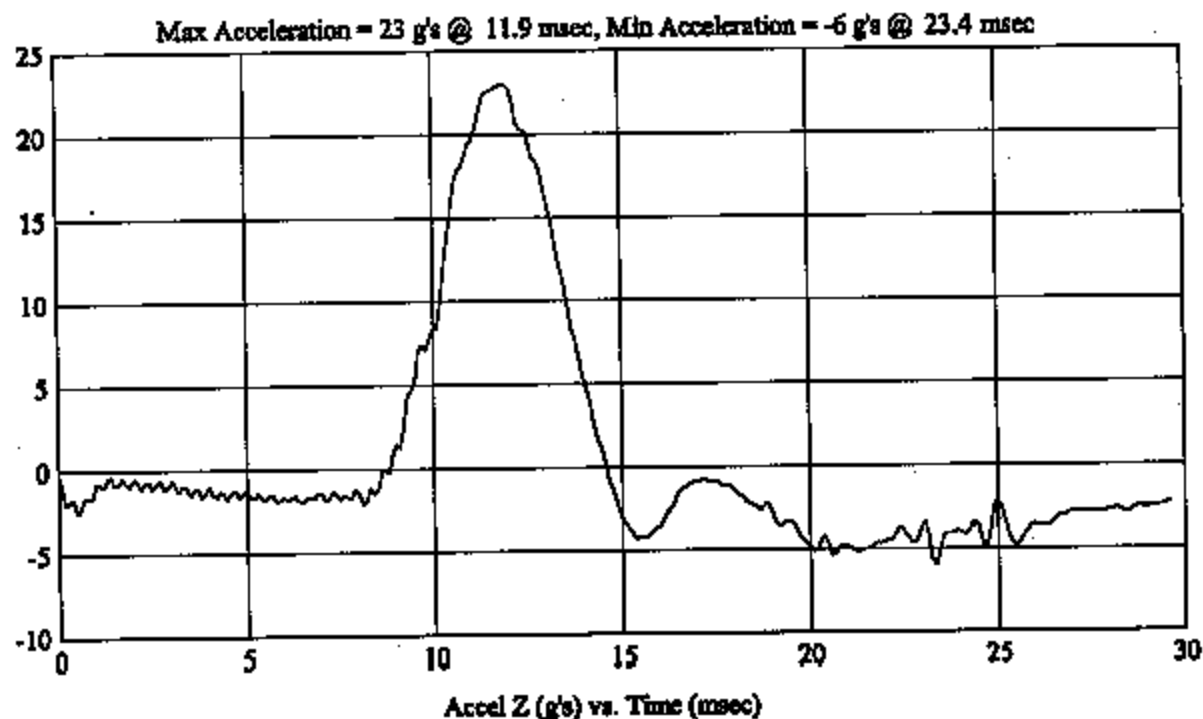
FMH
G04T7-001.5Customer: NISSAN
Test # 6
FM4076
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR1
Vehicle Side: Right
Horz/Vert Angle: 90/50

Test Date: 4/7/04

HIC(d) = 645, HIC = 634, Delta T = 7.4 msec



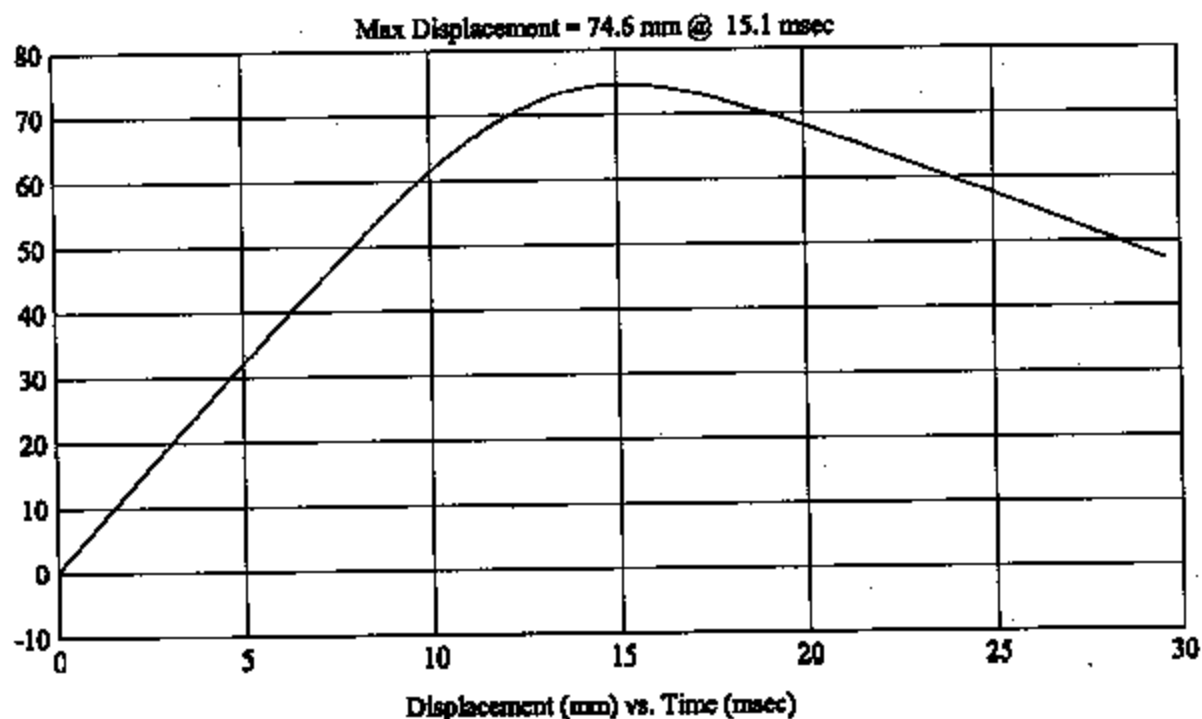
FMH
G04I7-001.5Customer: NISSAN
Test # 6
FM4076
Additional Desc: N/A

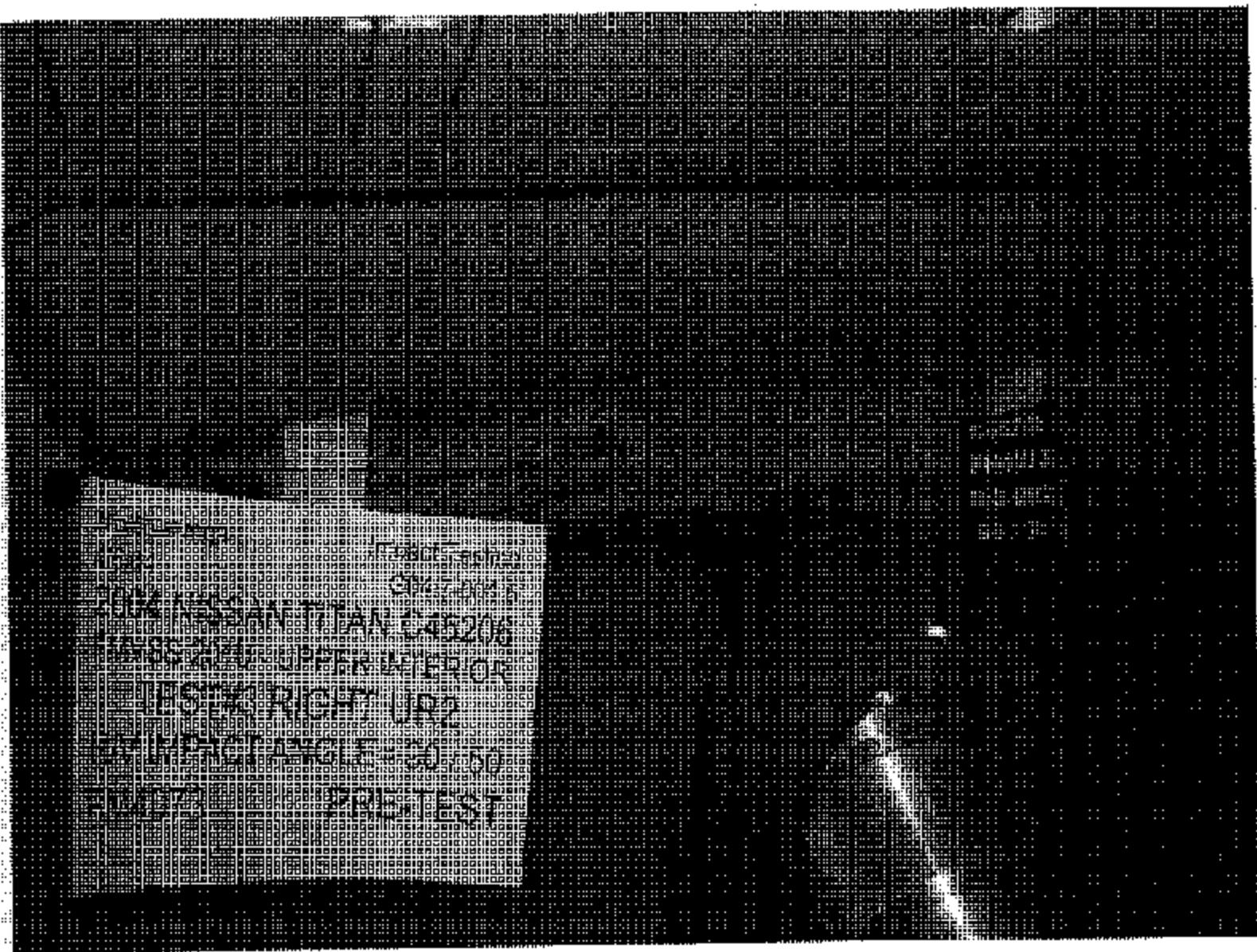
Vehicle Program : TITAN

Model Year: 2004
Target: UR1
Vehicle Side: Right
Horiz/Vert Angle: 90/50

Test Date: 4/7/04

HIC(d) = 645, HIC = 634, Delta T = 7.4 msec





Impact Testing

G0417-001.6

2004 NISSAN TITAN C45206

FMVGS 201U - UPPER INTERIOR

TEST #3 RIGHT UR2

HV IMPACT ANGLE = 90 / 50

FMVGS POST-TEST

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DOC. NO.: MGATP201U_FRAME #2
REVISION NO.: 5
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: C45706 VEHICLE YR/MAKE/MODEL: 2001 Nissan Titan

GENERAL TEST PARAMETERS:

Test Number: 3

Target (Vehicle Side): left (right) UR2

Temperature: 24 °F (C)

MGA Test Reference No.: Fm4073

Humidity: 17 %

Approach Angles: Horizontal 90 °

Time of Test: 2:30 am/pm (pm)

Vertical 50 °

FMH Serial No: 38

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
<u>658</u>	<u>651</u>	<u>7.8</u>	<u>23.6</u>	<u>26</u>	<u>3</u>

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
<u>X</u>	<u>5</u>	<u>J36197</u>	<u>-107.3</u>	<u>1.20</u>	<u>1.20</u>
<u>Y</u>	<u>6</u>	<u>J36193</u>	<u>101.1</u>	<u>1.23</u>	<u>1.23</u>
<u>Z</u>	<u>7</u>	<u>J36353</u>	<u>97.1</u>	<u>1.51</u>	<u>1.51</u>

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

NO VISIBLE DAMAGE

Recorded By: [Signature] Approved By: Heleen A. Kalito Date: 4/6/04

*Only necessary for NHTSA (Government) Compliance testing.

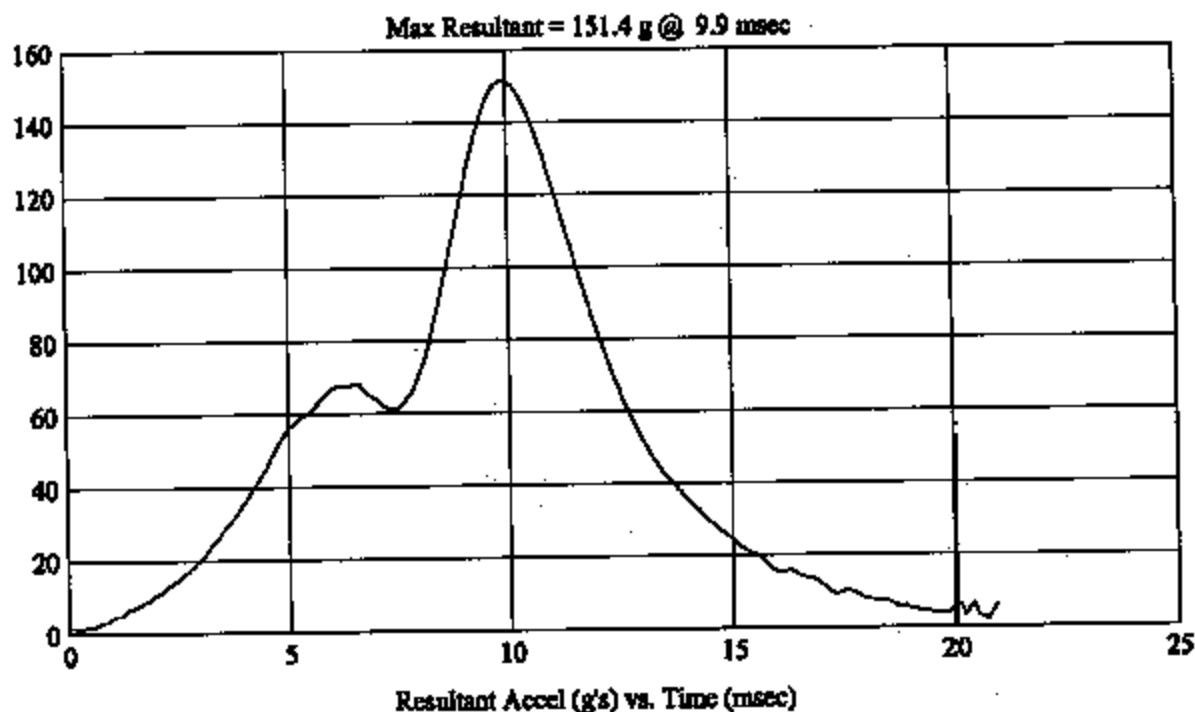
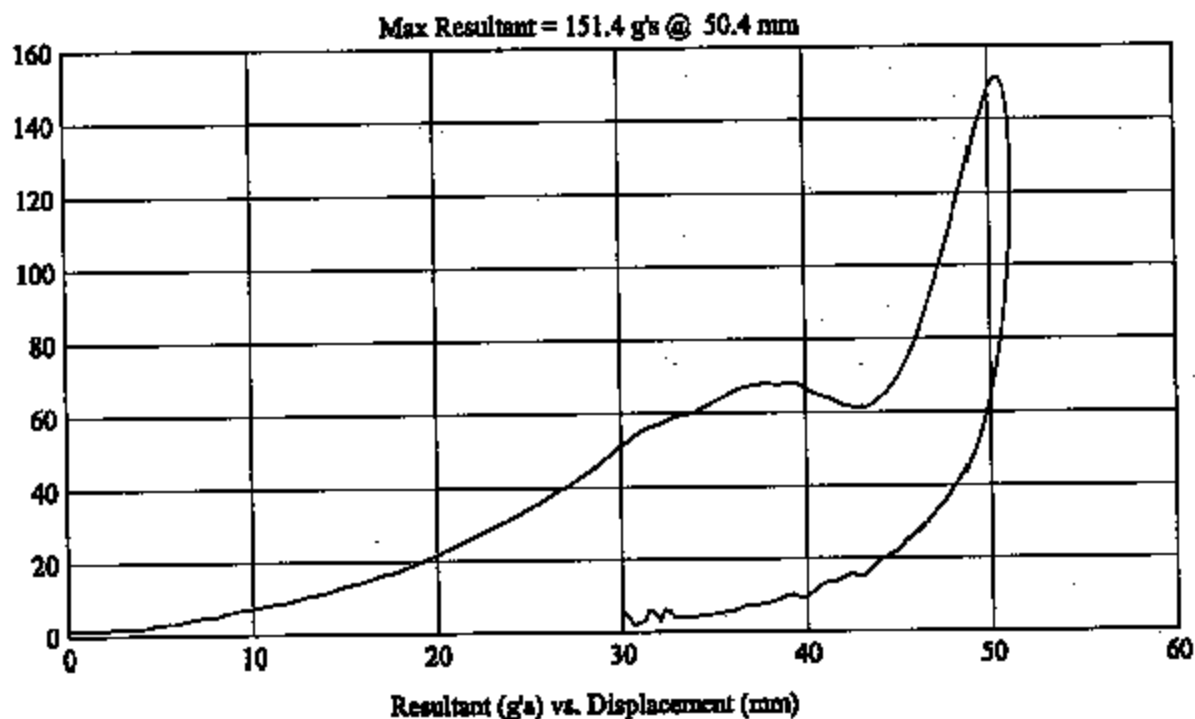
FMH
G0417-001.5Customer: NISSAN
Test # 3
FM4073
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR2
Vehicle Side: Right
Horz/Vert Angle: 90/50

Test Date: 4/6/04

HIC(d) = 658, HIC = 651, Delta T = 7.8 msec



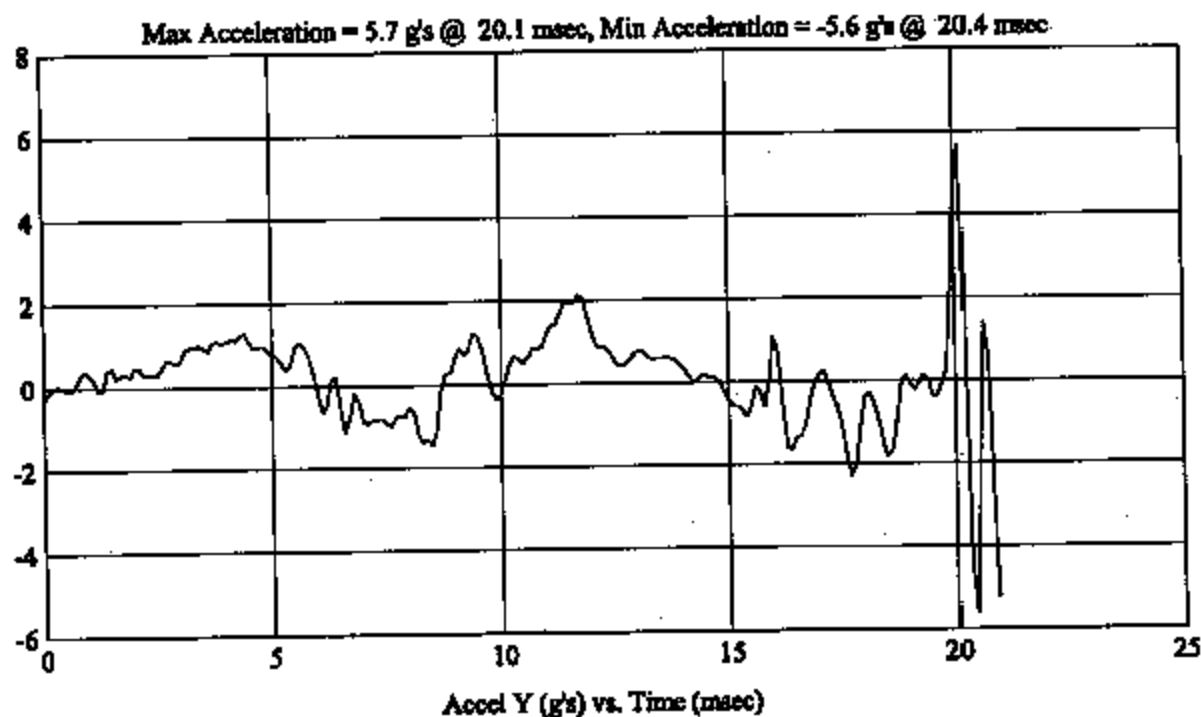
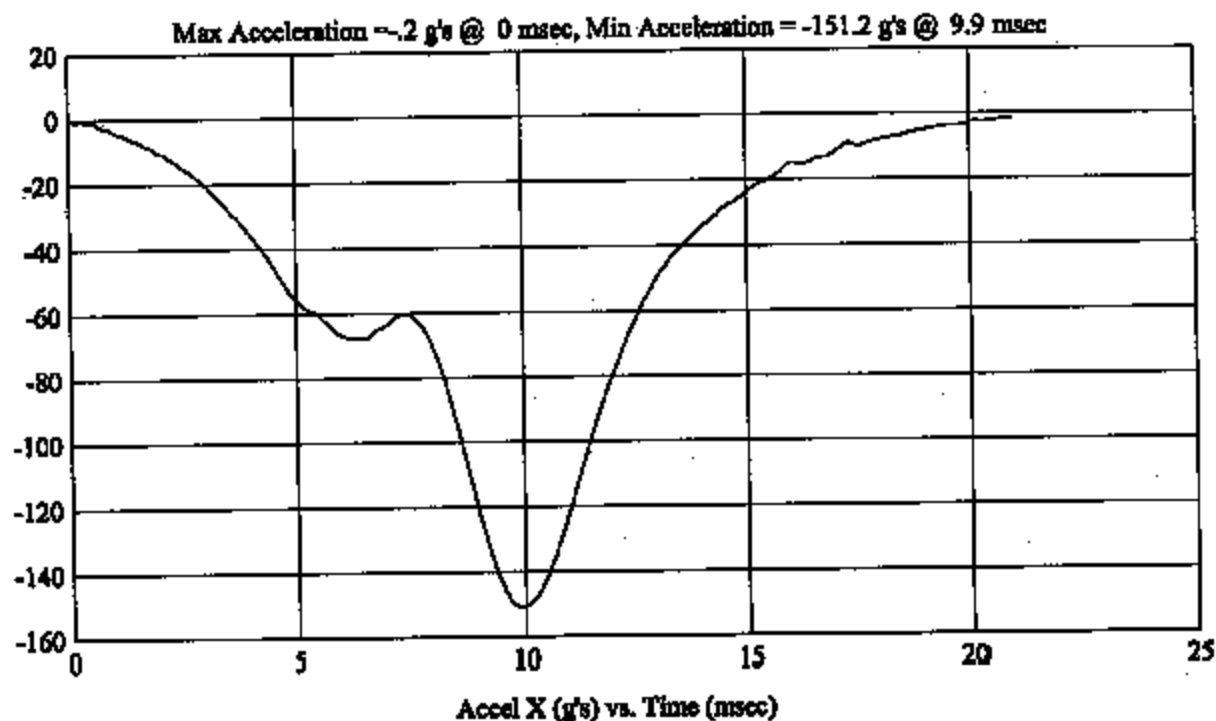
FMH
G04I7-001.5Customer: NISSAN
Test # 3
FM4073
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR2
Vehicle Side: Right
Horz/Vert Angle: 90/50

Test Date: 4/6/04

HIC(d) = 658, HIC = 651, Delta T = 7.8 msec



FMH
G04I7-001.5Customer: NISSAN
Test # 3
FM4073
Additional Desc: N/A

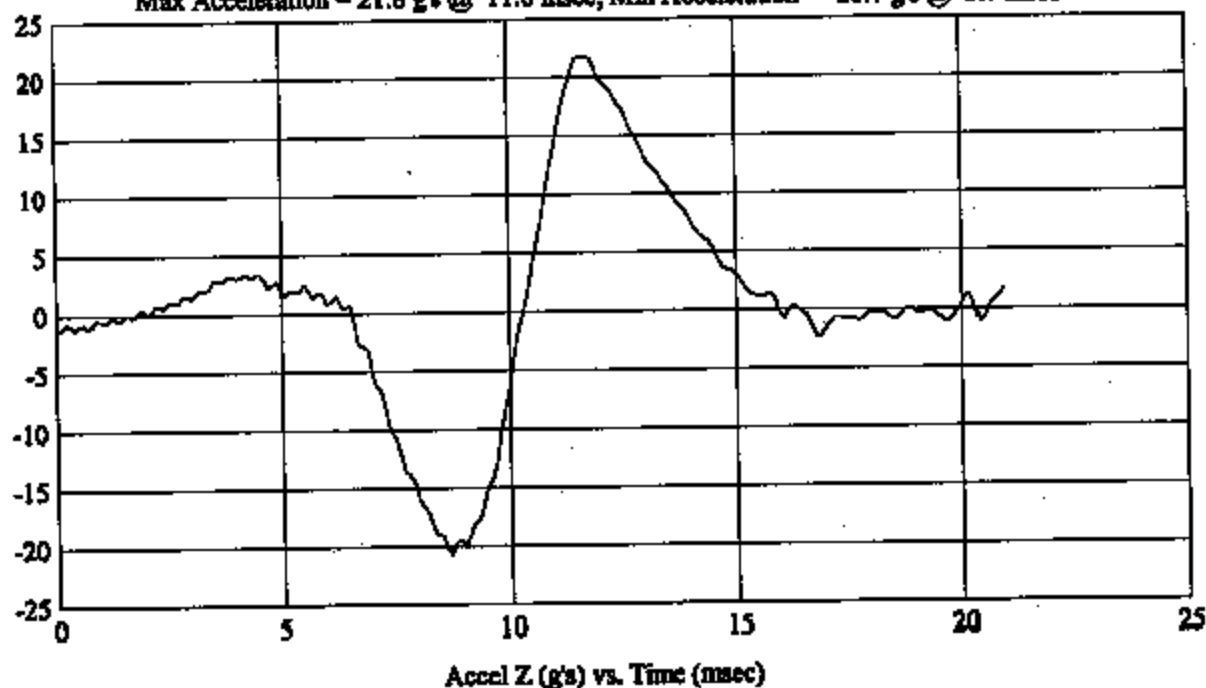
Vehicle Program: TITAN

Model Year: 2004
Target: UR2
Vehicle Side: Right
Horz/Vert Angle: 90/50

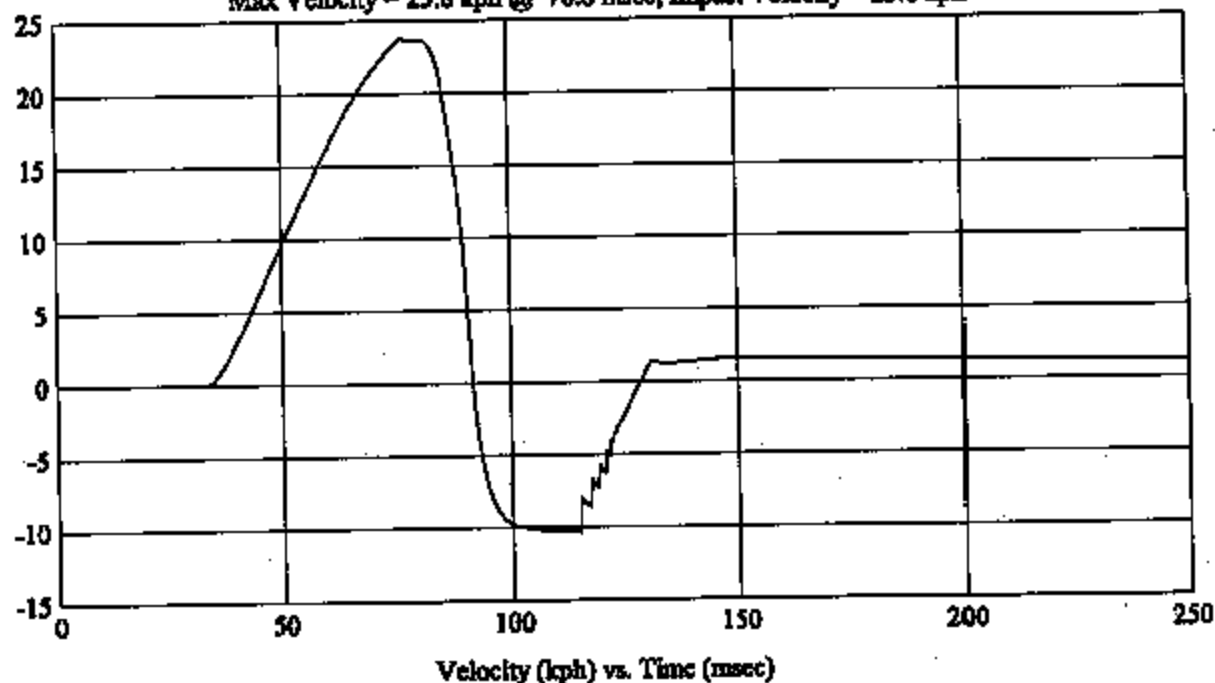
Test Date: 4/6/04

HIC(d) = 658, HIC = 651, Delta T = 7.8 msec

Max Acceleration = 21.8 g's @ 11.6 msec, Min Acceleration = -20.7 g's @ 8.7 msec



Max Velocity = 23.8 kph @ 76.8 msec, Impact Velocity = 23.6 kph



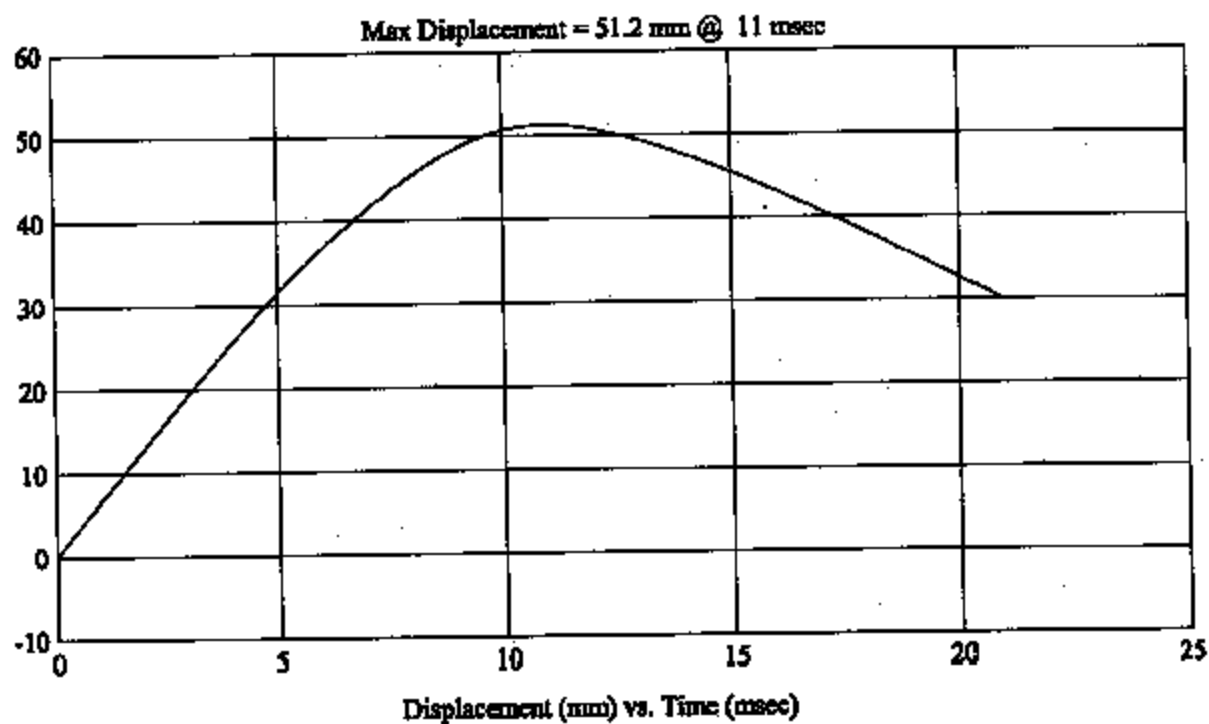
FMH
G04I7-001.5Customer: NISSAN
Test # 3
FM4073
Additional Desc: N/A

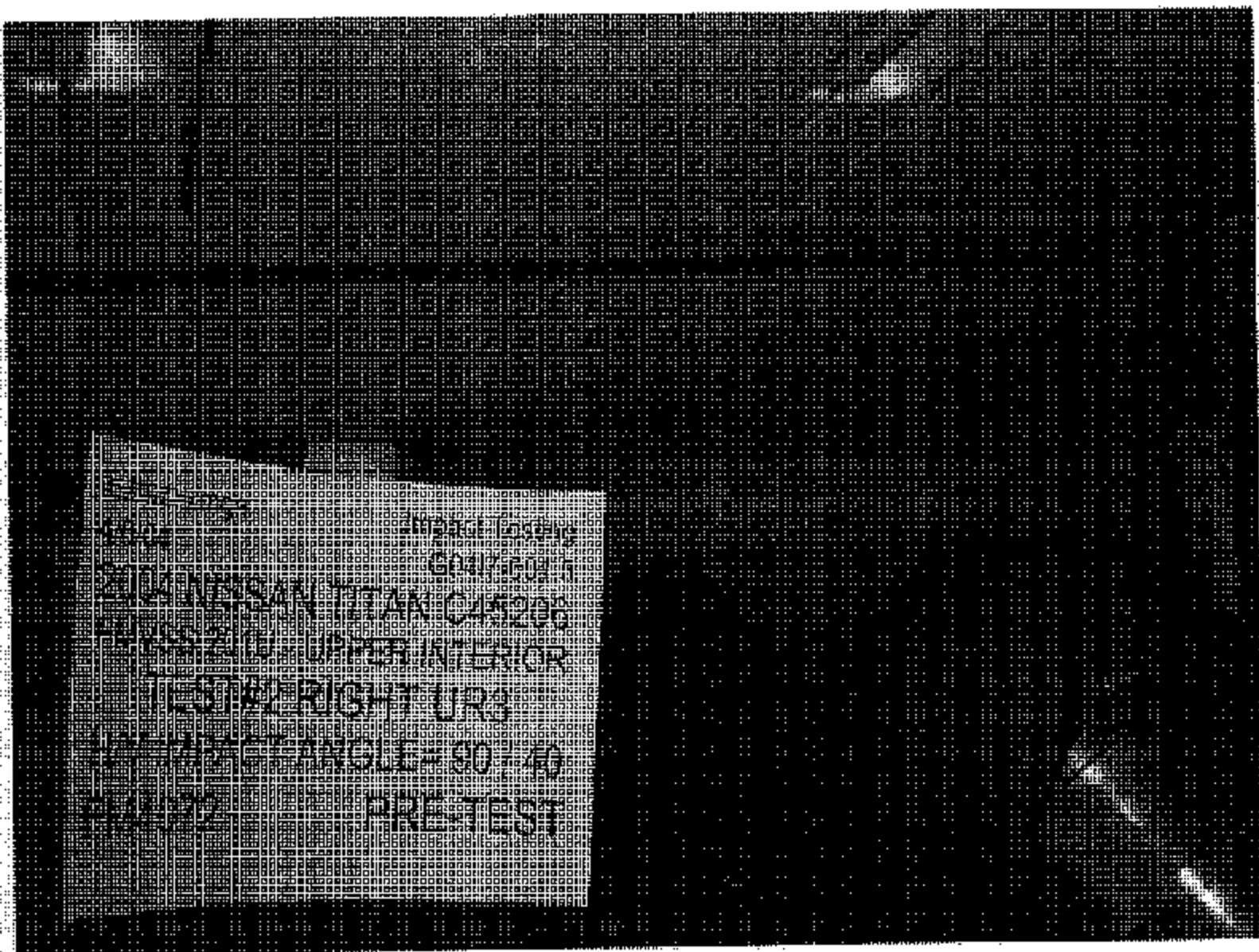
Vehicle Program : TITAN

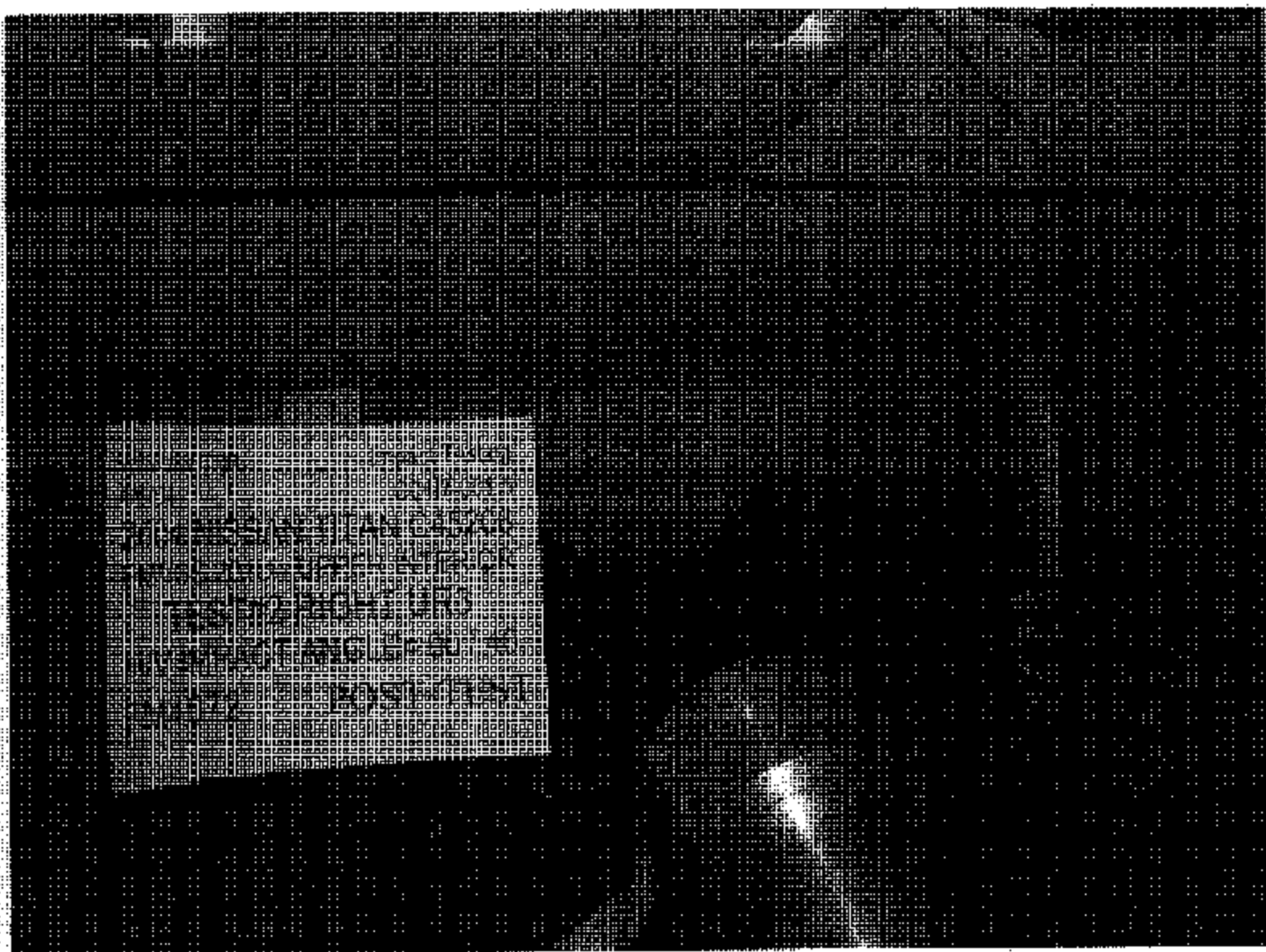
Model Year: 2004
Target: UR2
Vehicle Side: Right
Horz/Vert Angle: 90/50

Test Date: 4/6/04

HIC(d) = 658, HIC = 651, Delta T = 7.8 msec







Impact Testing

GC417-001.5

2004 NISSAN TITAN C45206

● W33-2011 UPPER INTERIOR

TEST#2 RIGHT UR3

● IMPACT ANGLE = 90 / 40

● W4072 POST-TEST

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DOC. NO.: MGATP201U_FRAME #2
REVISION NO.: 5
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: CYS206 VEHICLE YR/MAKE/MODEL: 2004 NISSAN TITAN

GENERAL TEST PARAMETERS:

Test Number: 2

Target (Vehicle Side): left (right) UR3

Temperature: 24 °F/°C

MGA Test Reference No.: FM4072

Humidity: 16 %

Approach Angles: Horizontal 90 °

Time of Test: 1:40 am/pm

Vertical 40 °

FMH Serial No: 36

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
673	671	8.6	23.5	48	8

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35923	-99.2	1.20	1.20
Y	6	J35916	99.6	1.28	1.23
Z	7	J35518	99.1	1.51	1.51

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

NO VISIBLE DAMAGE

Recorded By: [Signature]

Approved By: [Signature]

Date: 4/6/04

*Only necessary for NHTSA (Government) Compliance testing.

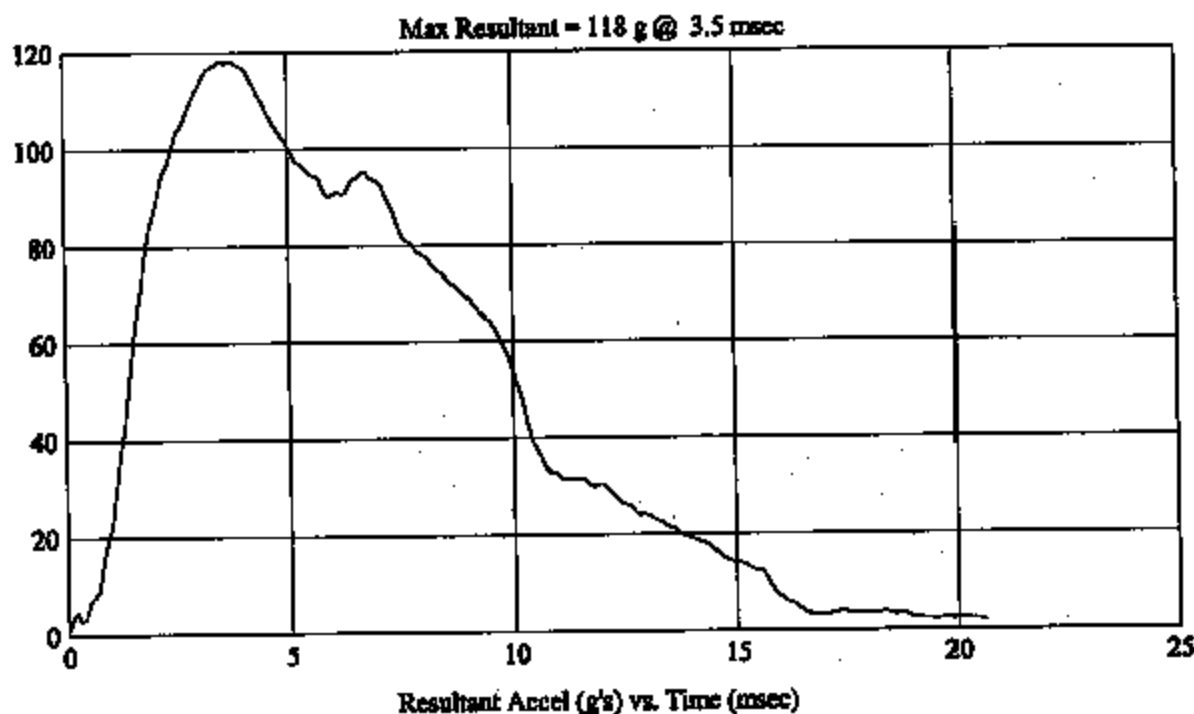
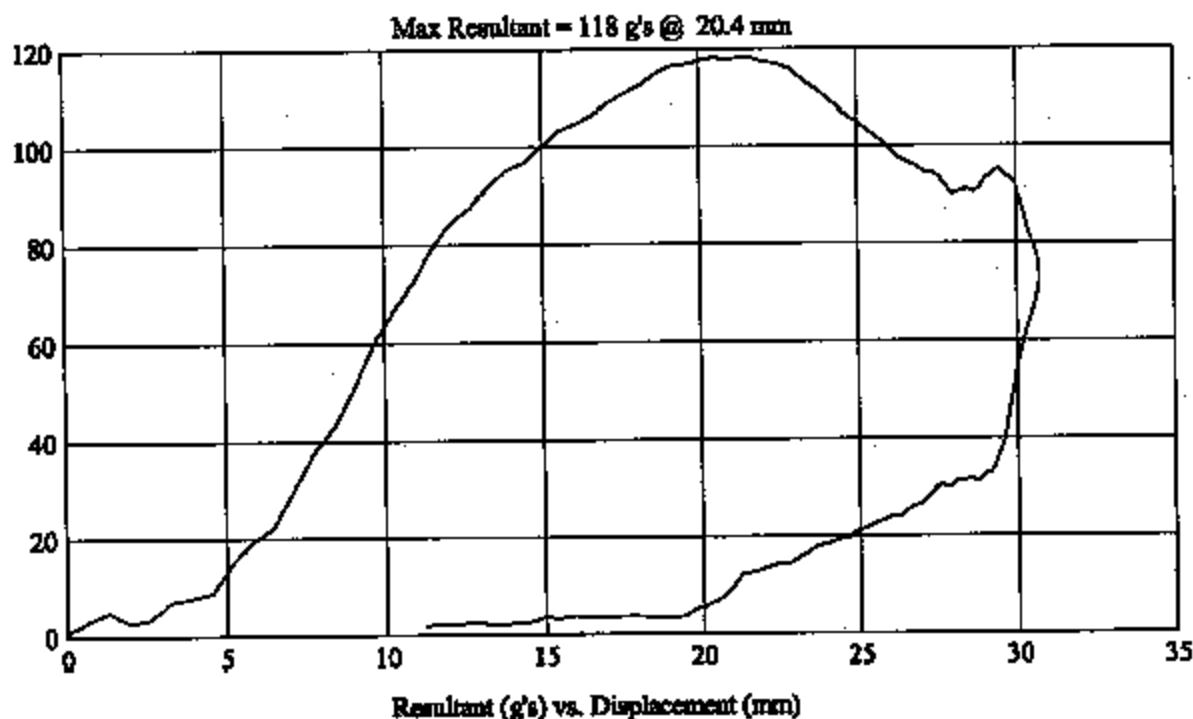
FMH
G04I7-001.5Customer: NISSAN
Test # 2
FM4072
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR3
Vehicle Side: Right
Horz/Vert Angle: 90/40

Test Date: 4/6/04

HIC(d) = 673, HIC = 671, Delta T = 8.6 msec



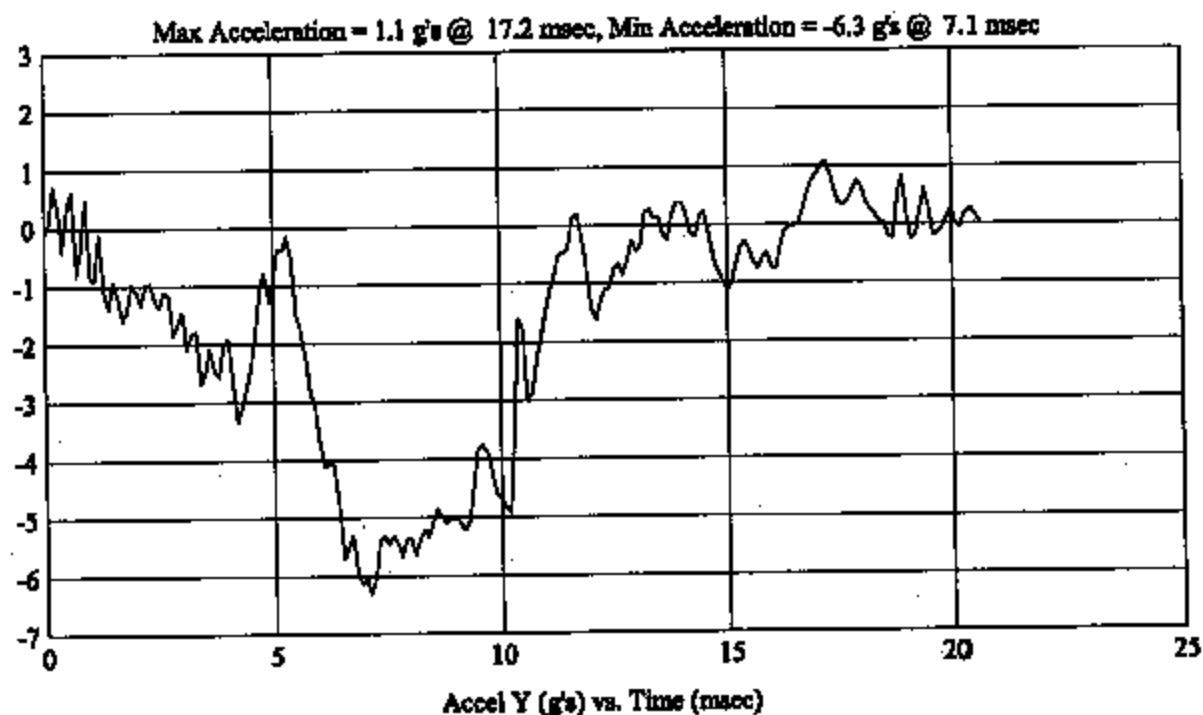
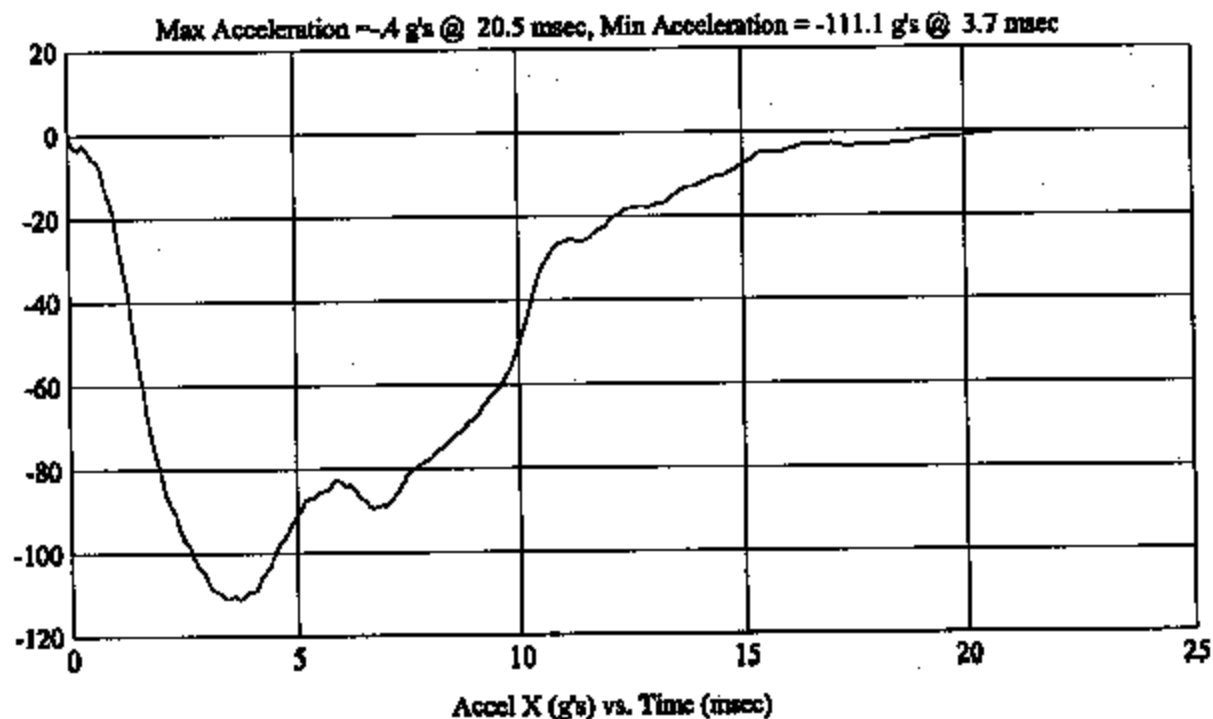
FMH
G04I7-001.5Customer: NISSAN
Test # 2
FM4072
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR3
Vehicle Side: Right
Horz/Vert Angle: 90/40

Test Date: 4/6/04

HIC(d) = 673, HIC = 671, Delta T = 8.6 msec



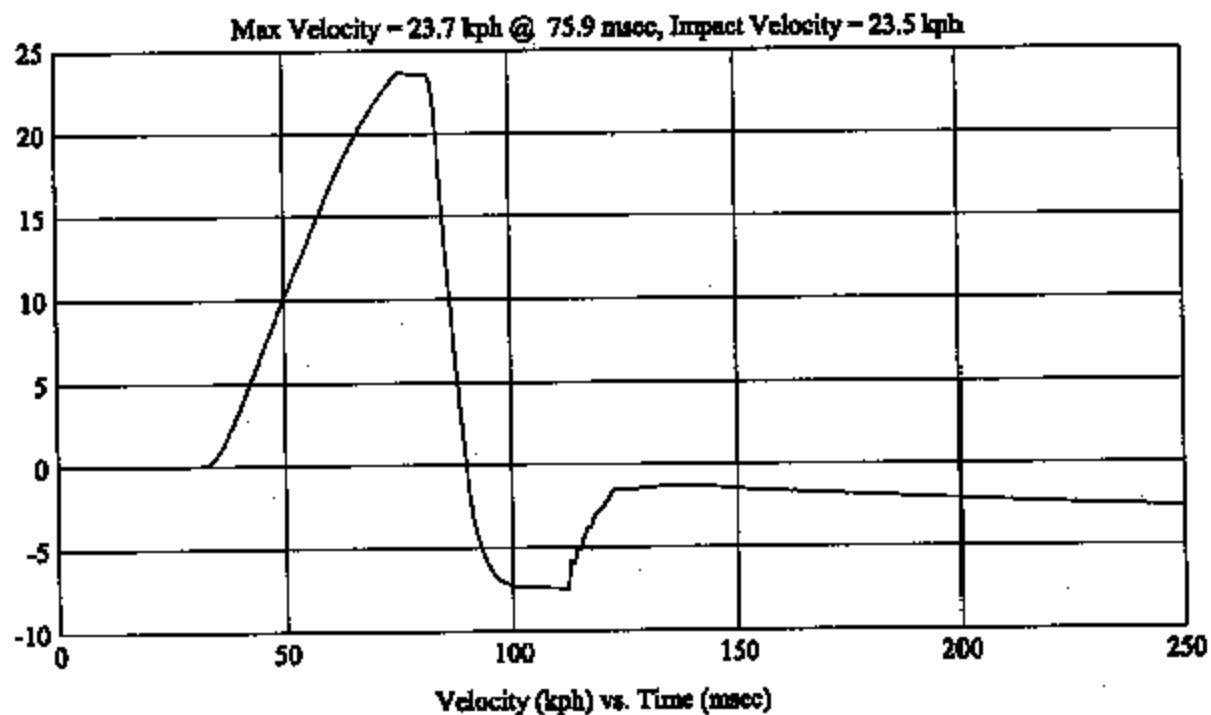
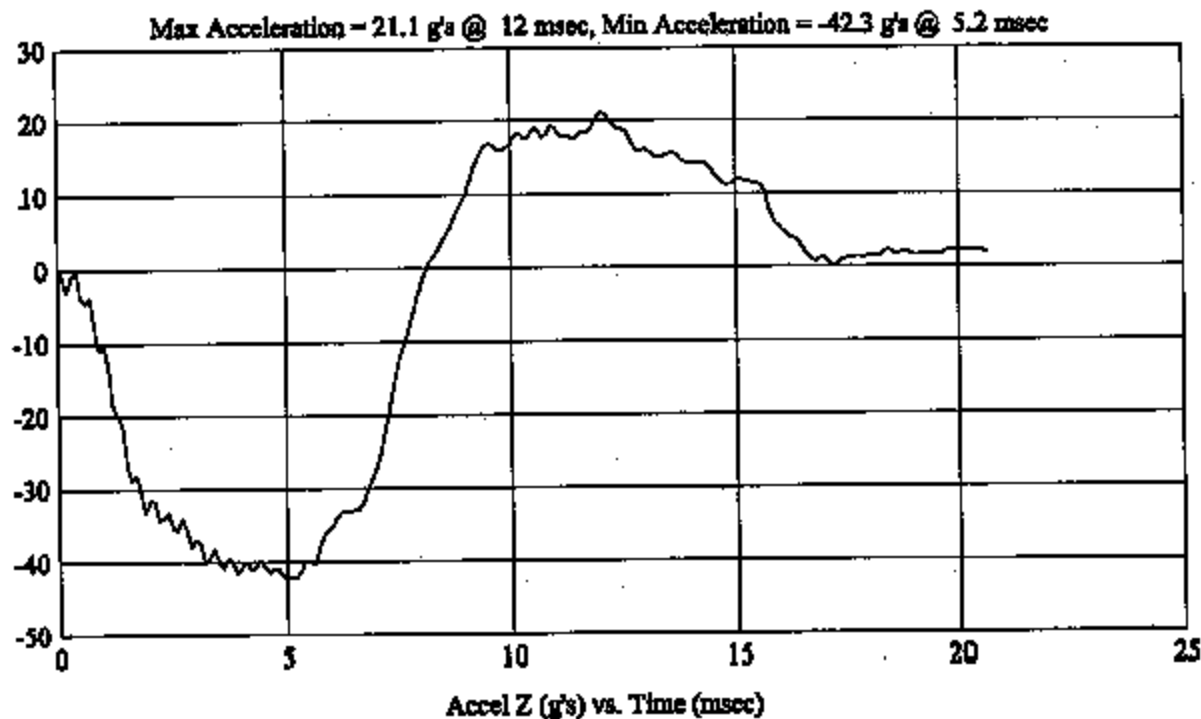
FMH
G04I7-001.5Customer: NISSAN
Test # 2
FM4072
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR3
Vehicle Side: Right
Horz/Vert Angle: 90/40

Test Date: 4/6/04

HIC(d) = 673, HIC = 671, Delta T = 8.6 msec



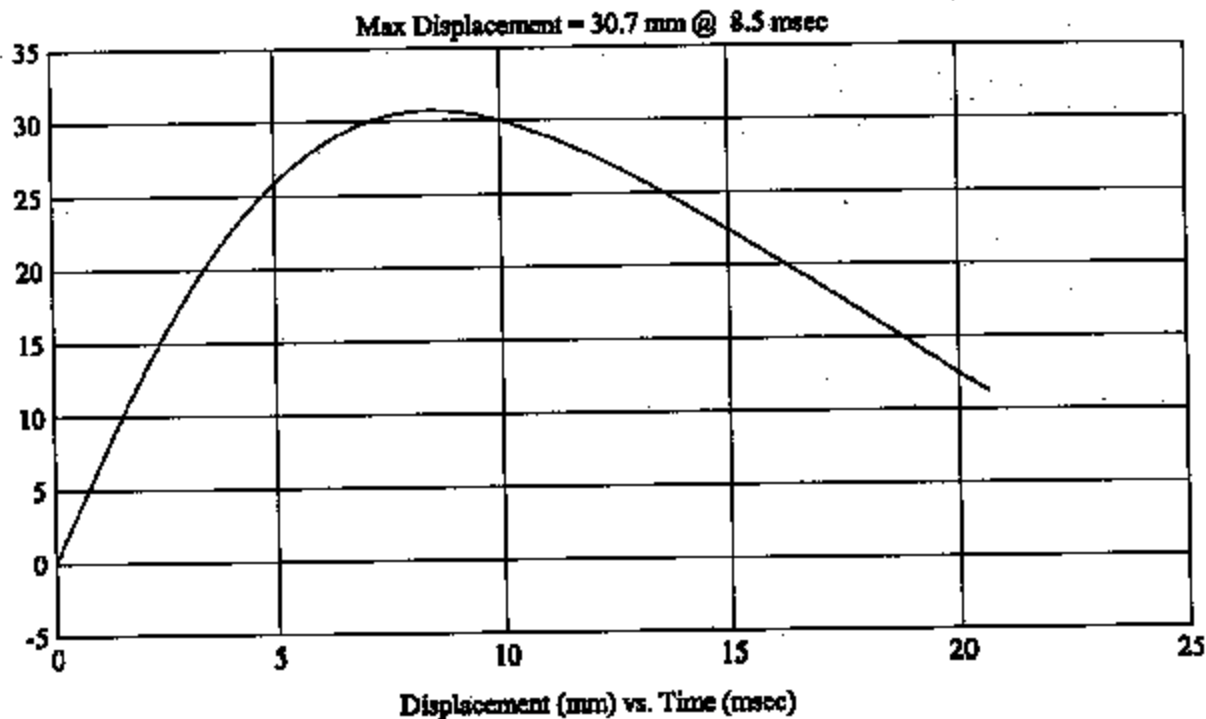
FMH
G04I7-001.5Customer: NISSAN
Test # 2
FM4072
Additional Desc: N/A

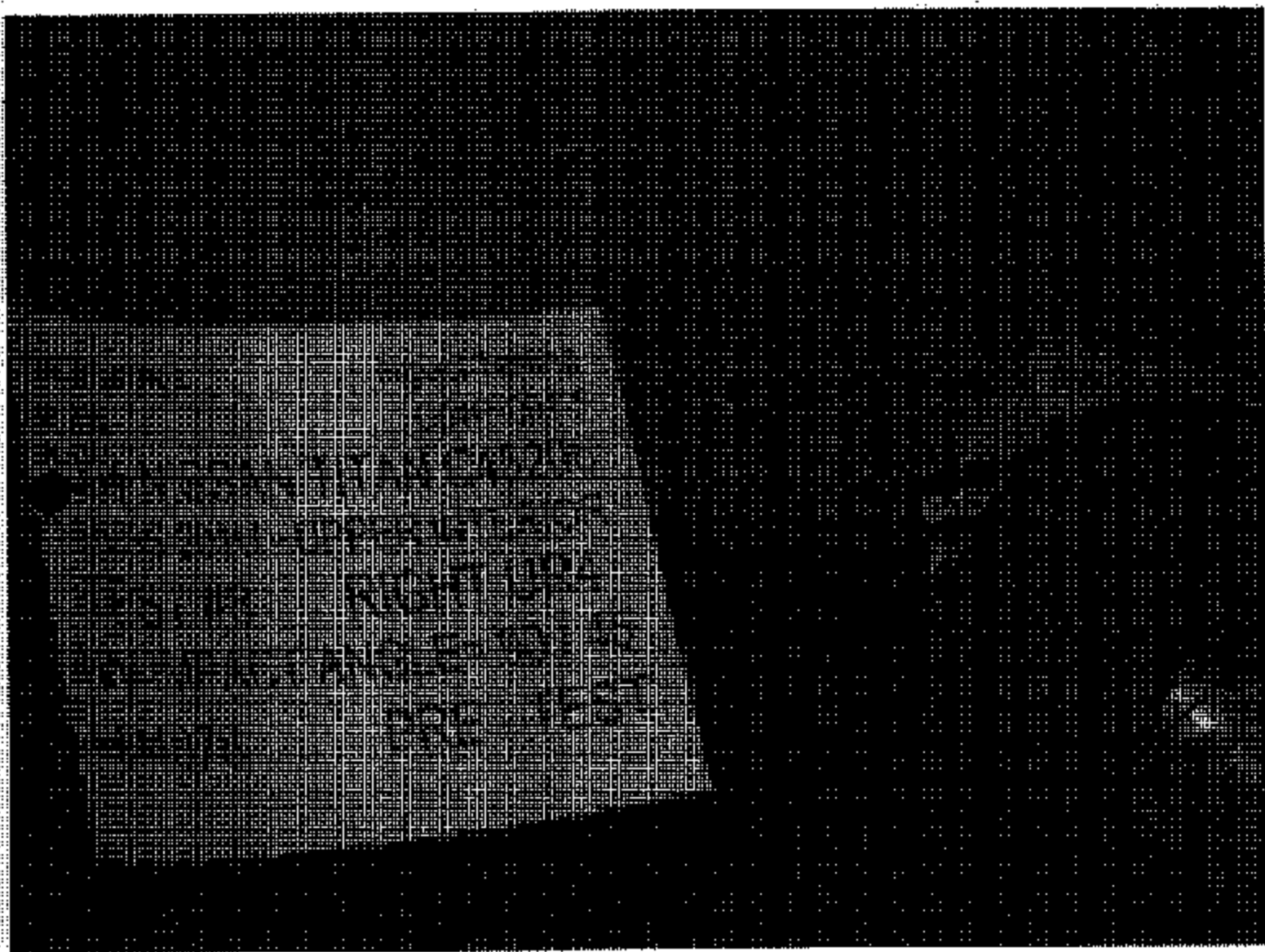
Vehicle Program : TITAN

Model Year: 2004
Target: UR3
Vehicle Side: Right
Horz/Vert Angle: 90/40

Test Date: 4/6/04

HIC(d) = 673, HIC = 671, Delta T = 8.6 msec





INTEGRAL TASSING

E047-0015

NISSAN TITAN C45208

UPPER INTERIOR

RIGHT UR4

IMPACT ANGLE=30/45

POST TEST

Impact Testing

C047/C015

SAN TITAN C45206

U- UPPER/INTERIOR

RIGHT UR4

IMPACT ANGLE= 90/45

POST-TEST

MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATP201U_FRAME #2.4

DOC. NO.: MGATP201U_FRAME #2
REVISION NO.: 3
PAGE 9 OF 9

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: 60437-001.5 VEHICLE YR/MAKE/MODEL: 2001/Nissan/Titan

GENERAL TEST PARAMETERS:

Test Number: 8

Target (Vehicle Side): left high UR4

Temperature: 25 °F/°C

MGA Test Reference No.: FMH 078

Humidity: 24 %

Approach Angles: Horizontal 90 °

Time of Test: 2:00 am/pm

Vertical 45 °

FMH Serial No: 36

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
470	402	10.1	23.4	35	2

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

AxIs	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35923	-99.2	1.20	1.20
Y	6	J35916	99.6	1.23	1.23
Z	7	J35918	99.1	1.81	1.81

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

NO VISIBLE DAMAGE

Recorded By: [Signature] Approved By: [Signature] Date: 4-7-04

*Only necessary for NHTSA (Government) Compliance testing.

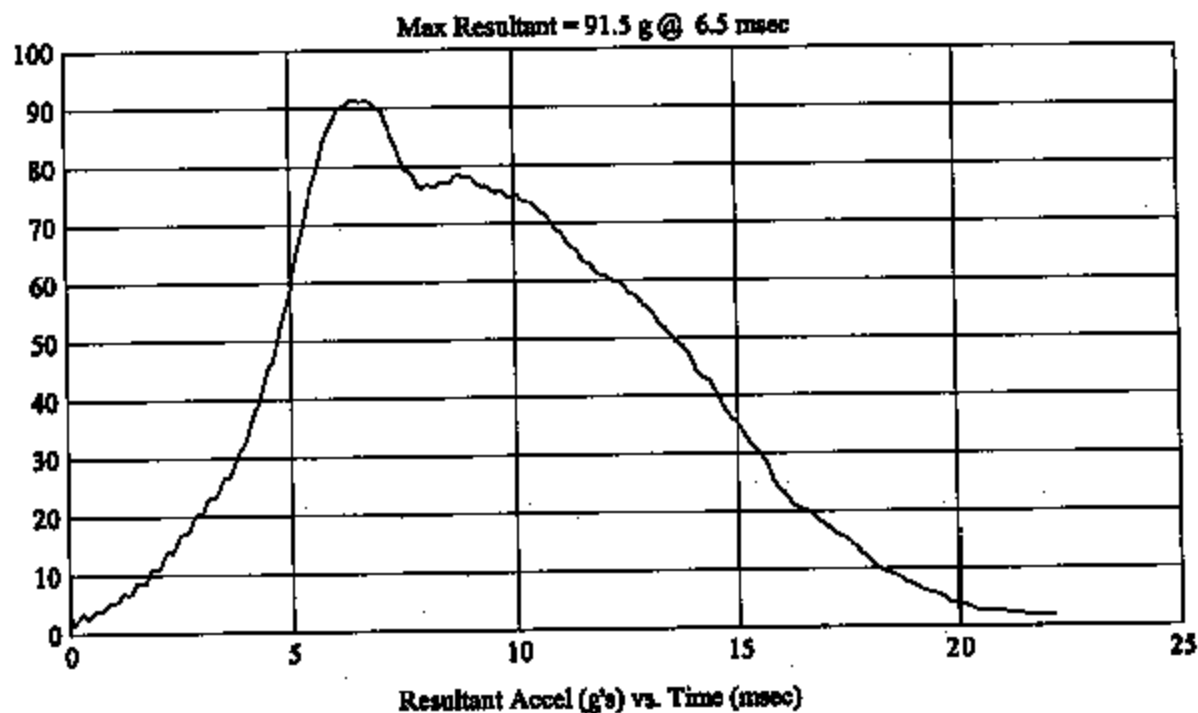
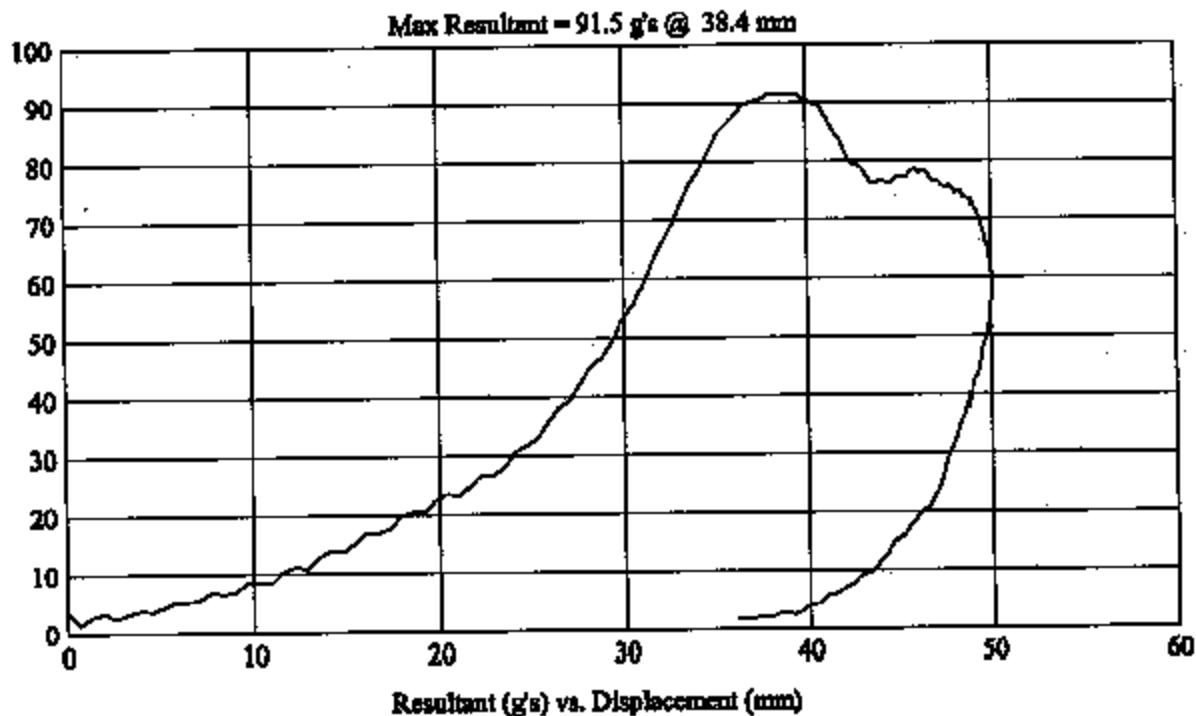
FMH
G0417-001.5Customer: NISSAN
Test # 8
FM4078
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR4
Vehicle Side: Right
Horz/Vert Angle: 90/45

Test Date: 4/7/04

HIC(d) = 470, HIC = 402, Delta T = 10.1 msec



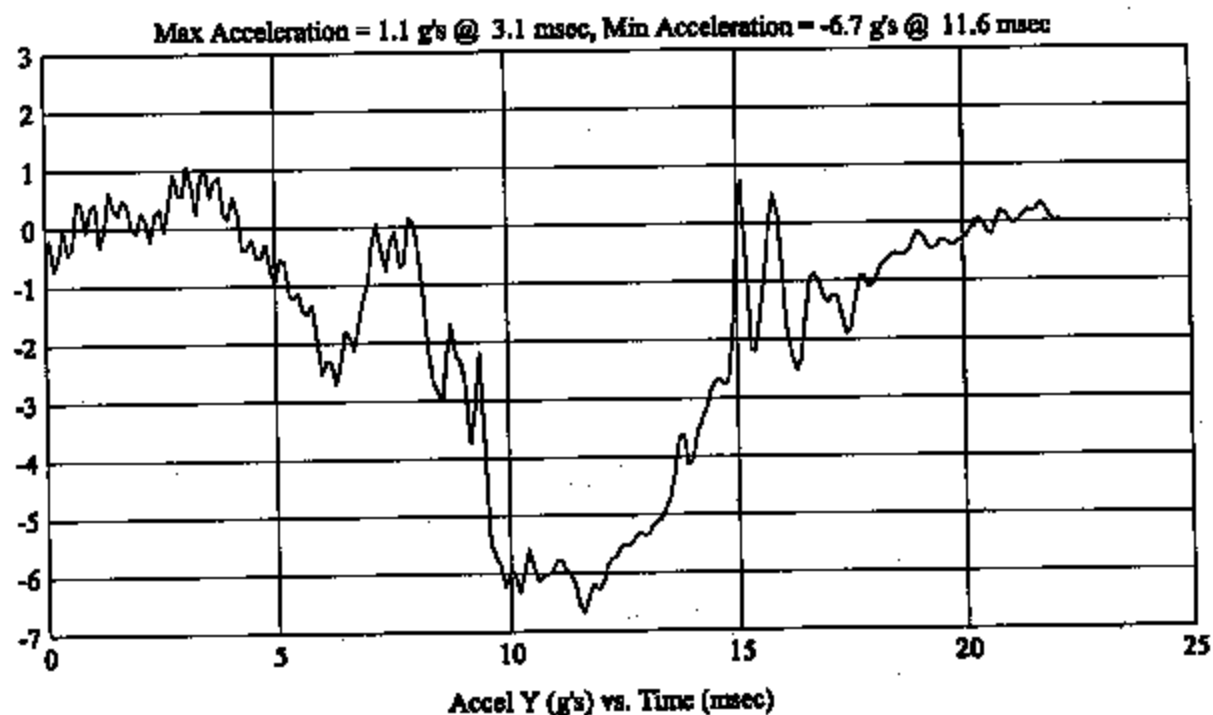
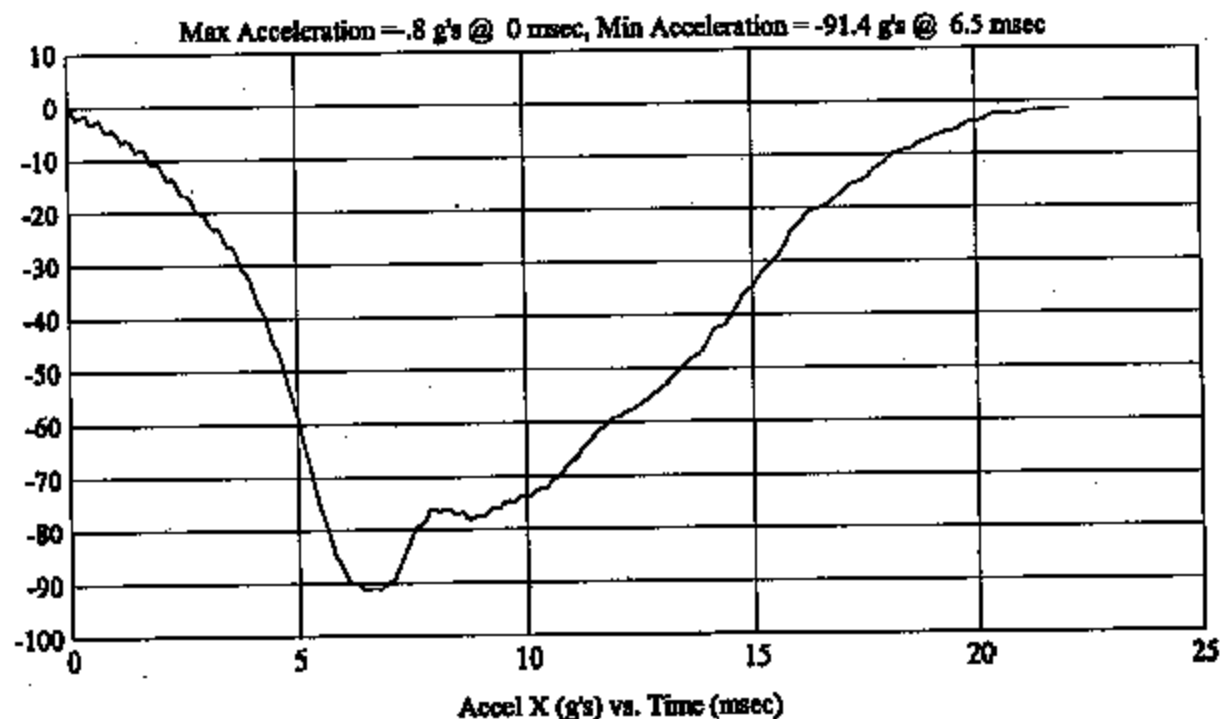
FMH
G04I7-001.5Customer: NISSAN
Test # 8
FM4078
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR4
Vehicle Side: Right
Horz/Vert Angle: 90/45

Test Date: 4/7/04

HIC(d) = 470, HIC = 402, Delta T = 10.1 msec



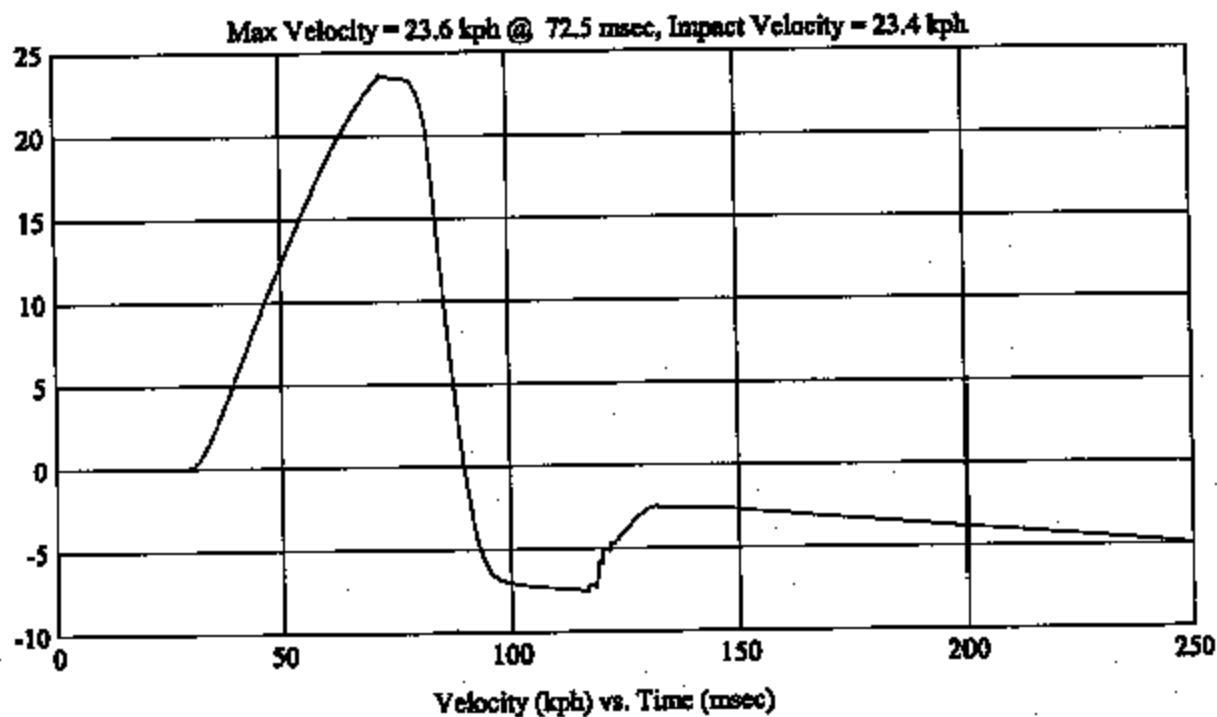
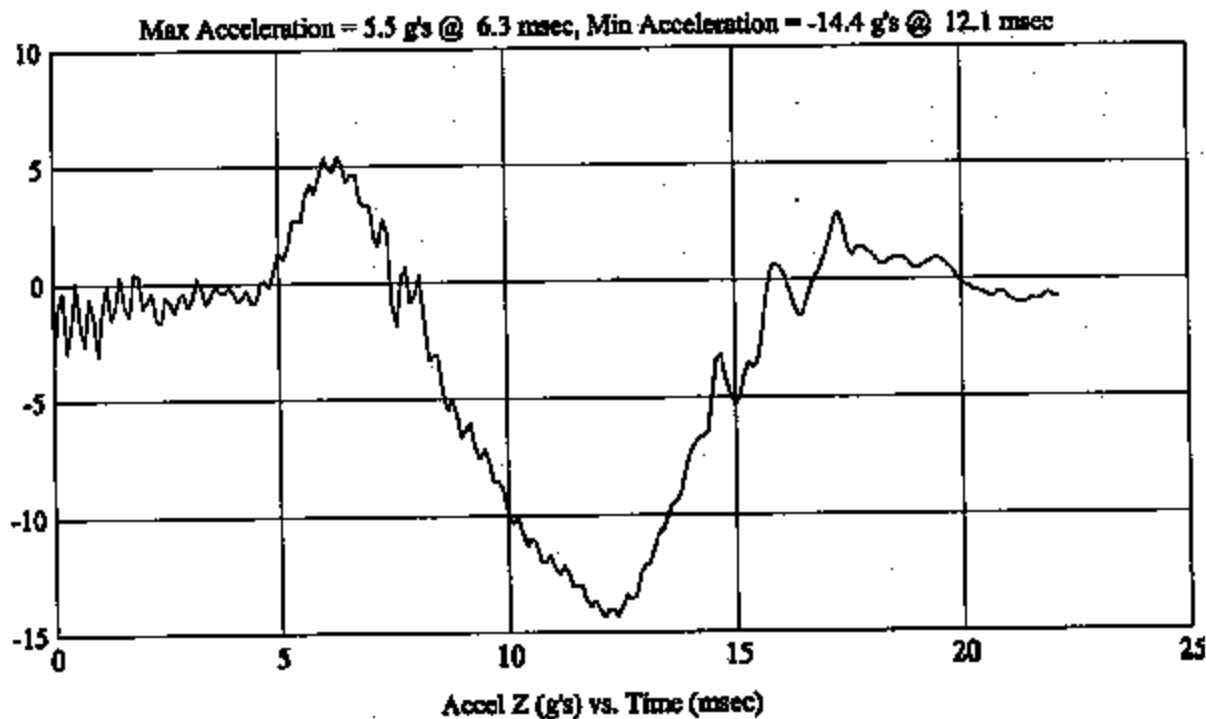
FMH
G04I7-001.5Customer: NISSAN
Test # 8
FM4078
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR4
Vehicle Side: Right
Horz/Vert Angle: 90/45

Test Date: 4/7/04

HIC(d) = 470, HIC = 402, Delta T = 10.1 msec



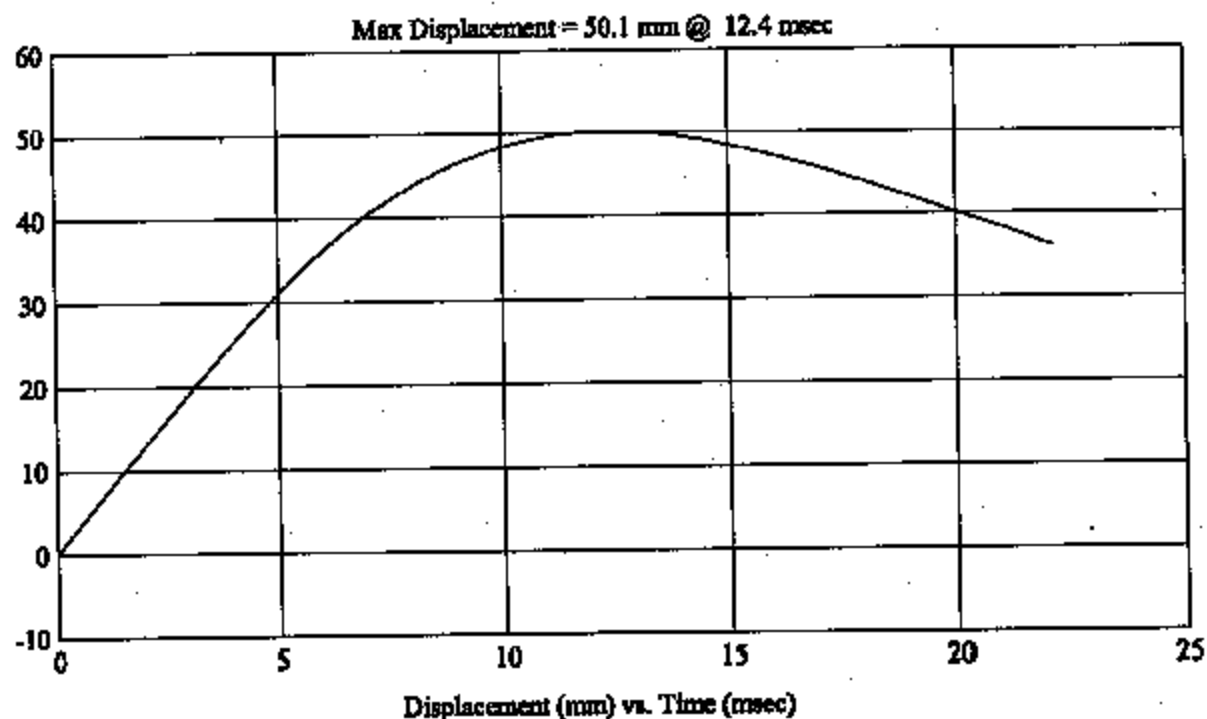
FMH
G04I7-001.5Customer: NISSAN
Test # 8
FM4078
Additional Desc: N/A

Vehicle Program : TITAN

Model Year: 2004
Target: UR4
Vehicle Side: Right
Horz/Vert Angle: 90/45

Test Date: 4/7/04

HIC(d) = 470, HIC = 402, Delta T = 10.1 msec



4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

The following section lists the test equipment for the compliance test series. Items marked with an asterisk are calibrated by an external lab. An additional summary table is given for the pre and post-test calibration data for the Free Motion Headforms. The temperature trace to confirm testing was conducted between 66°F and 78°F (19°C - 26°C) is included in Appendix A.

TABLE 4-1 LIST OF ITEMS USED

ITEM	MANUFACTURER NAME	MODEL #	FUNCTION OF ITEM	ACCURACY	CAL. INTERNAL
Head Drop Tower (Includes test frame and DAS)	MGA Research Corp.	MGA-100-DC	FMH Calibration	N/A	N/A
Accelerometers	Endevco	7264-2000	Acceleration Data	±0.5%	6 months
*Digital Inclinometer	Mitutoyo	PRO 360	Set Angle of FMH/Targeting	0.1°	Annual
FMVSS 201U Test Frame (Includes the propulsion control system, actuator, test frame, and DAS)	MGA Research Corp.	MGA-100-FMH	Test System	N/A	N/A
Free Motion Headforms	UTAMA UTAMA UTAMA	035 036 038	Test Device	N/A	Pre and Post-Test Series
High Speed Video	Kodak	RO1000	Record Event	N/A	N/A
*FARO™	Faro Technologies	S08058801273	Targeting	0.1 mm	Annual
Measuring Devices: - Tape Measure - Plumb Bobs - Protractor	Stanley N/A Craftsman	33-215 — —	Measurement Targeting FMH setup Horizontal Measurement	1 mm N/A 0.5°	Annual
*Vehicle Scale 9804-022/9805-175	Cardinal	8950F	Weighing Vehicle	± .5 kg	Annual
* Scale	Detecto	AP-20	Weigh FMH Head	± 0.01 lb	Annual
*Temperature Recorder	Dickson	THB-24C	Record Temperature and Humidity	± 1°C ± 1% RH	Annual

TABLE 4-2 FMH CALIBRATION SUMMARY DATA SUMMARY TABLE

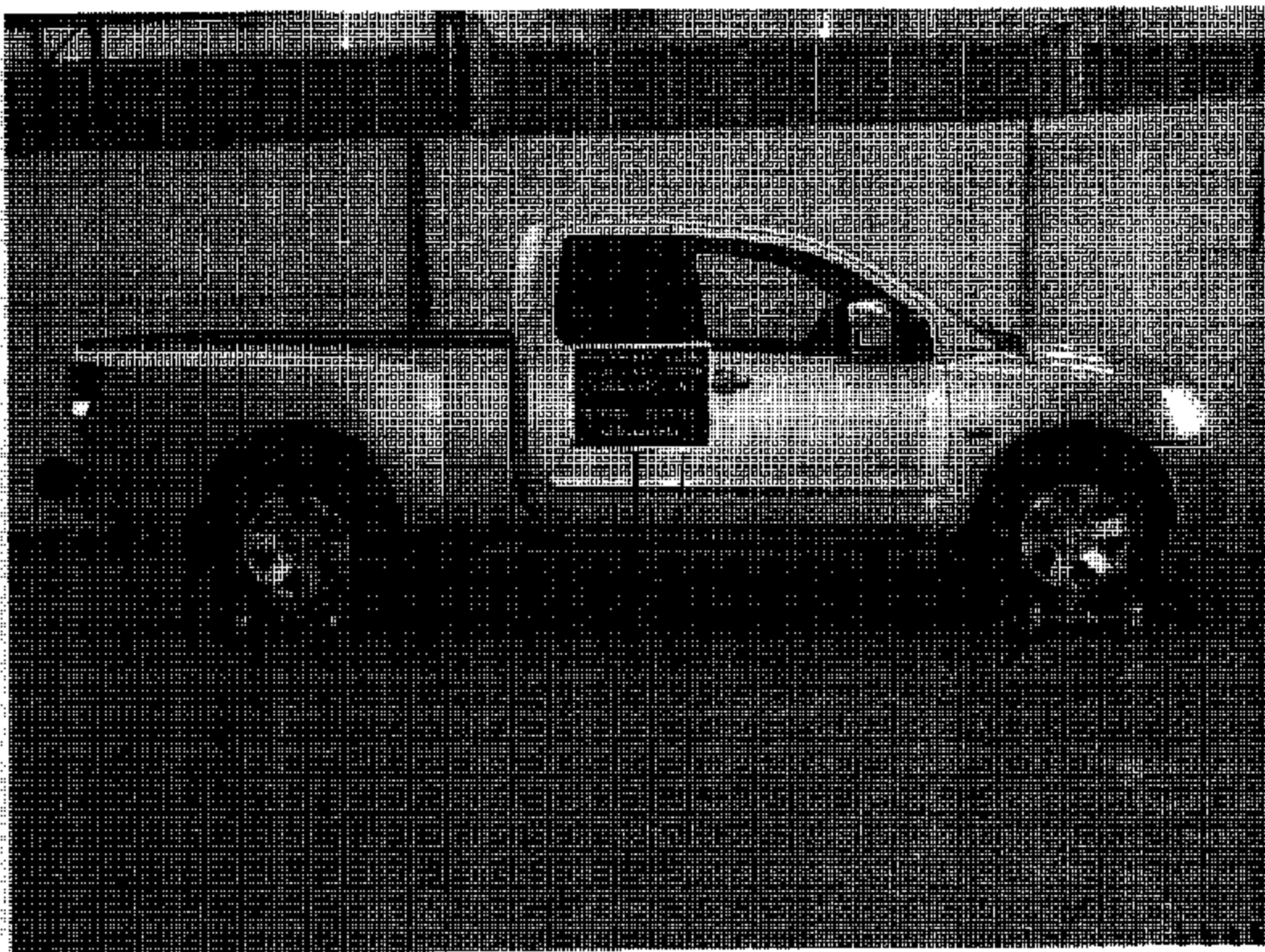
FMH Serial #		Weight (lbs)	Temp (°C)	% Humidity	Peak Resultant Acceleration (G's)	Peak Lateral Acceleration (G's)	Unimodal
Pre	#35	10.02	23.0	21.0	250.5	8.5	Yes
Post	#35	10.02	25.0	24.0	230.2	10.3	Yes
Pre	#36	10.03	23.0	21.0	257.1	10.2	Yes
Post	#36	10.03	25.0	24.0	255.9	12.1	Yes
Pre	#38	9.99	23.0	21.0	258.9	4.9	Yes
Post	#38	9.99	25.0	24.0	254.4	6.2	Yes

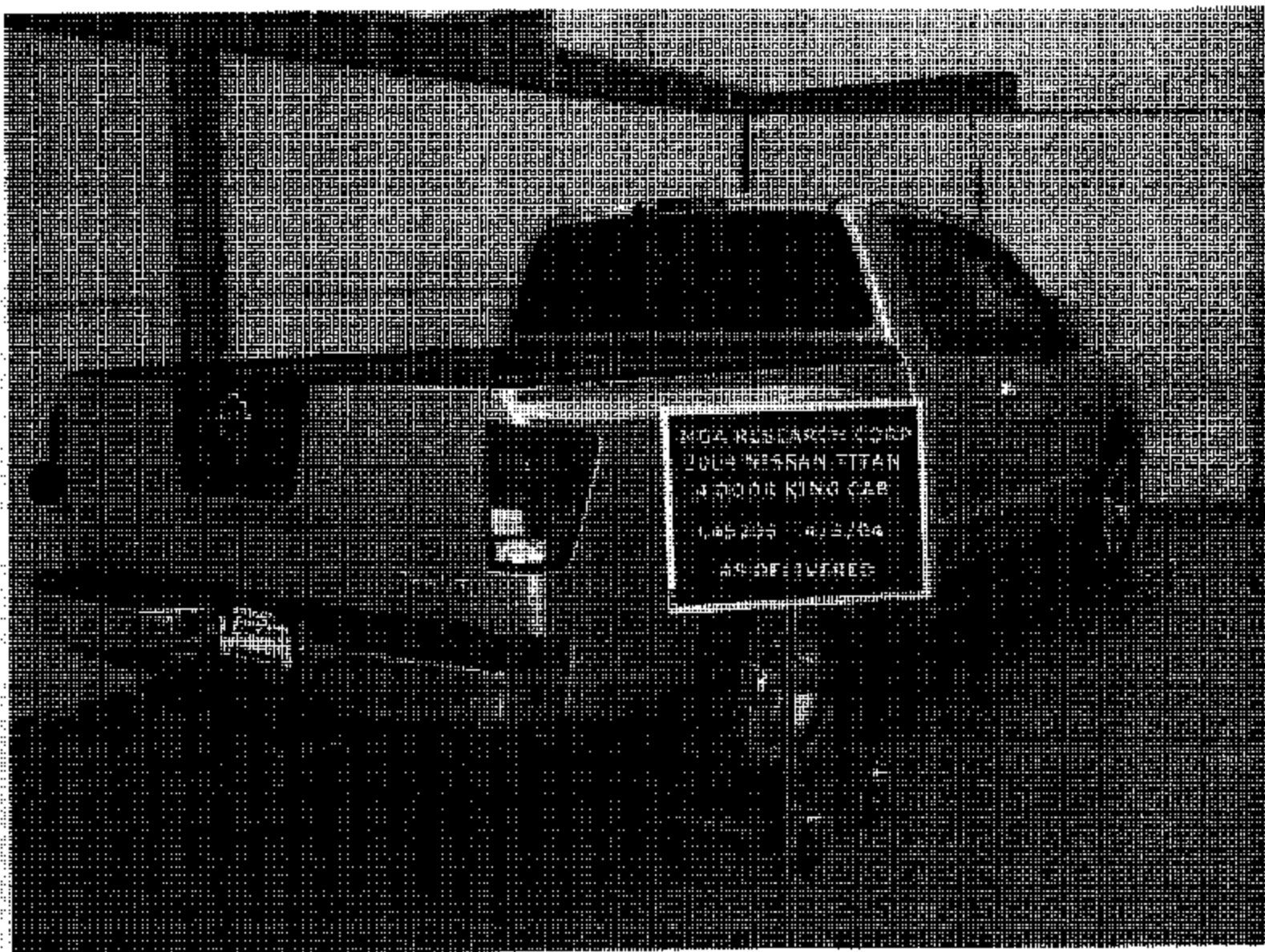
Calibration certificates and headform calibration information can be found in the P572L Performance Calibration report which accompanies this report.

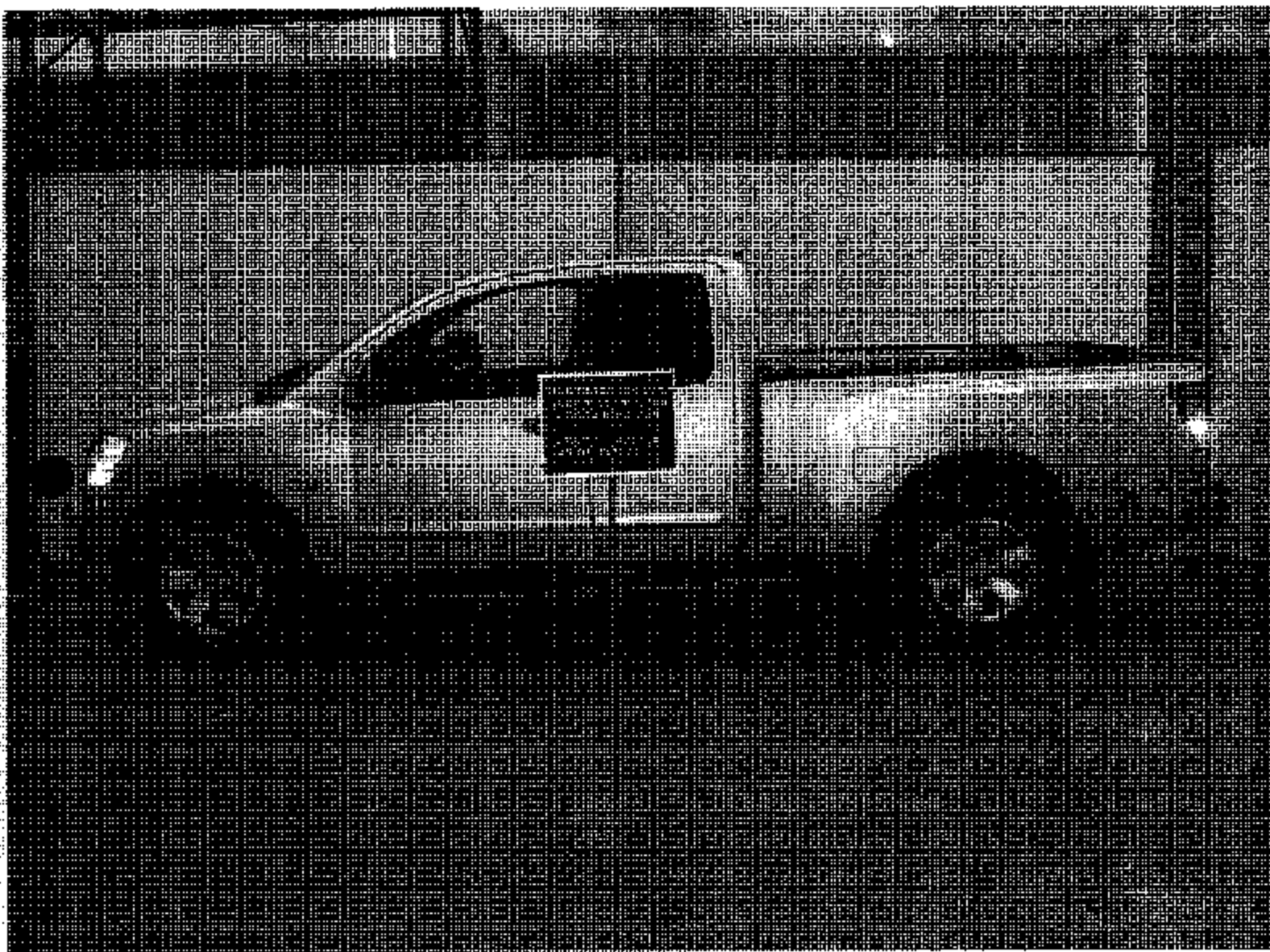
RECORDED BY: David G. Gotwals

DATE: April 2, 2004

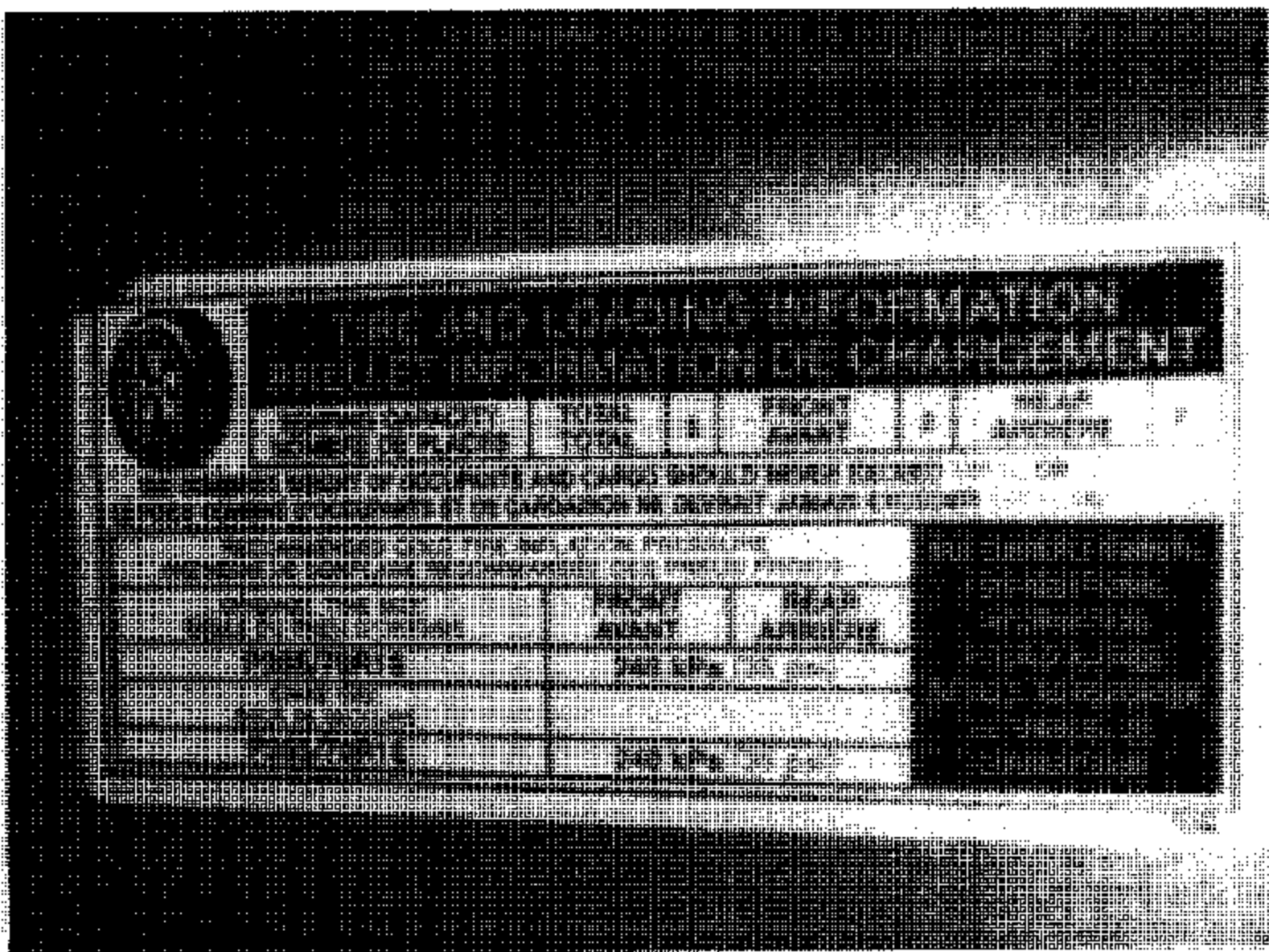
APPROVED BY: Helen A. Kalet

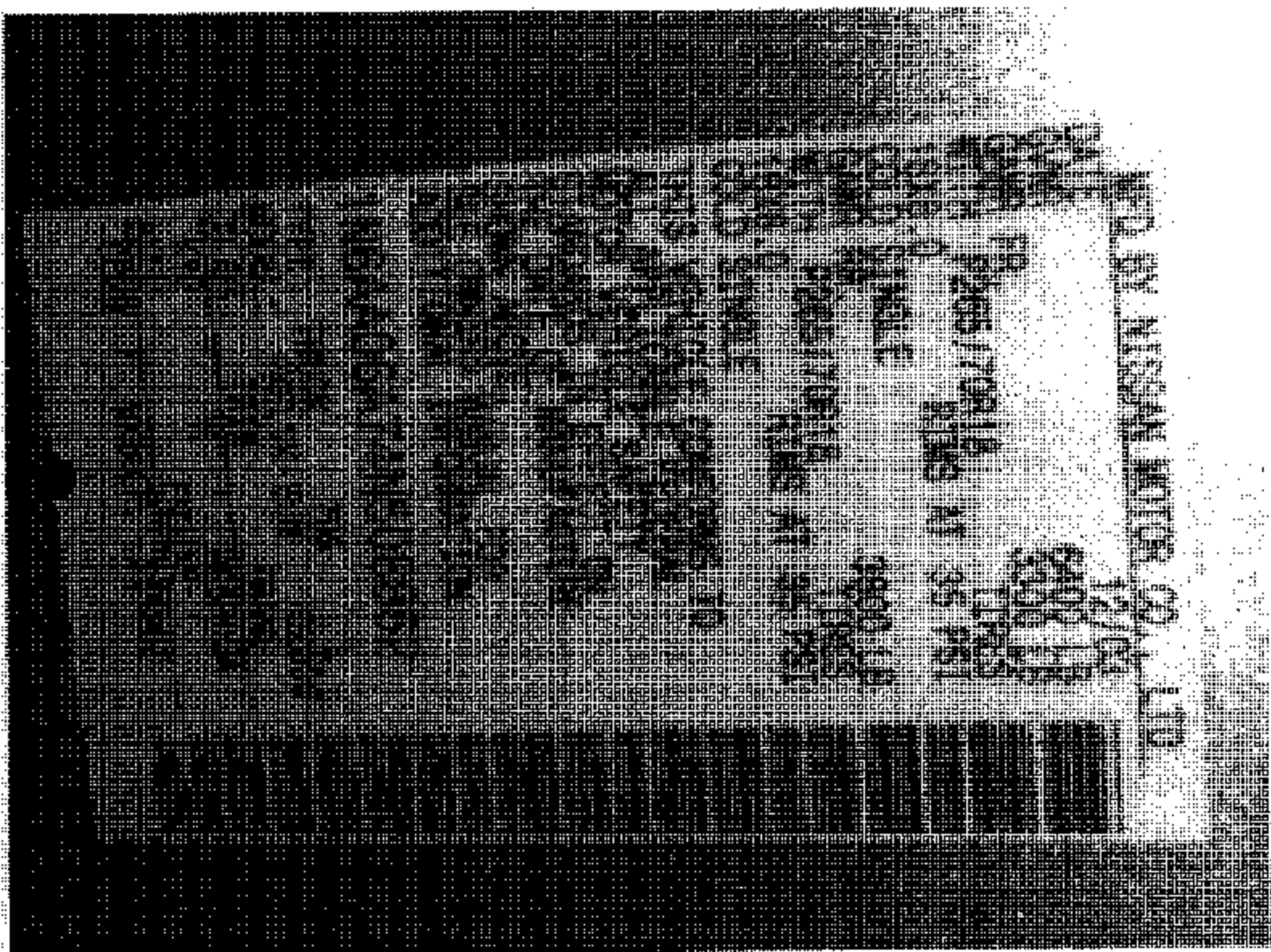


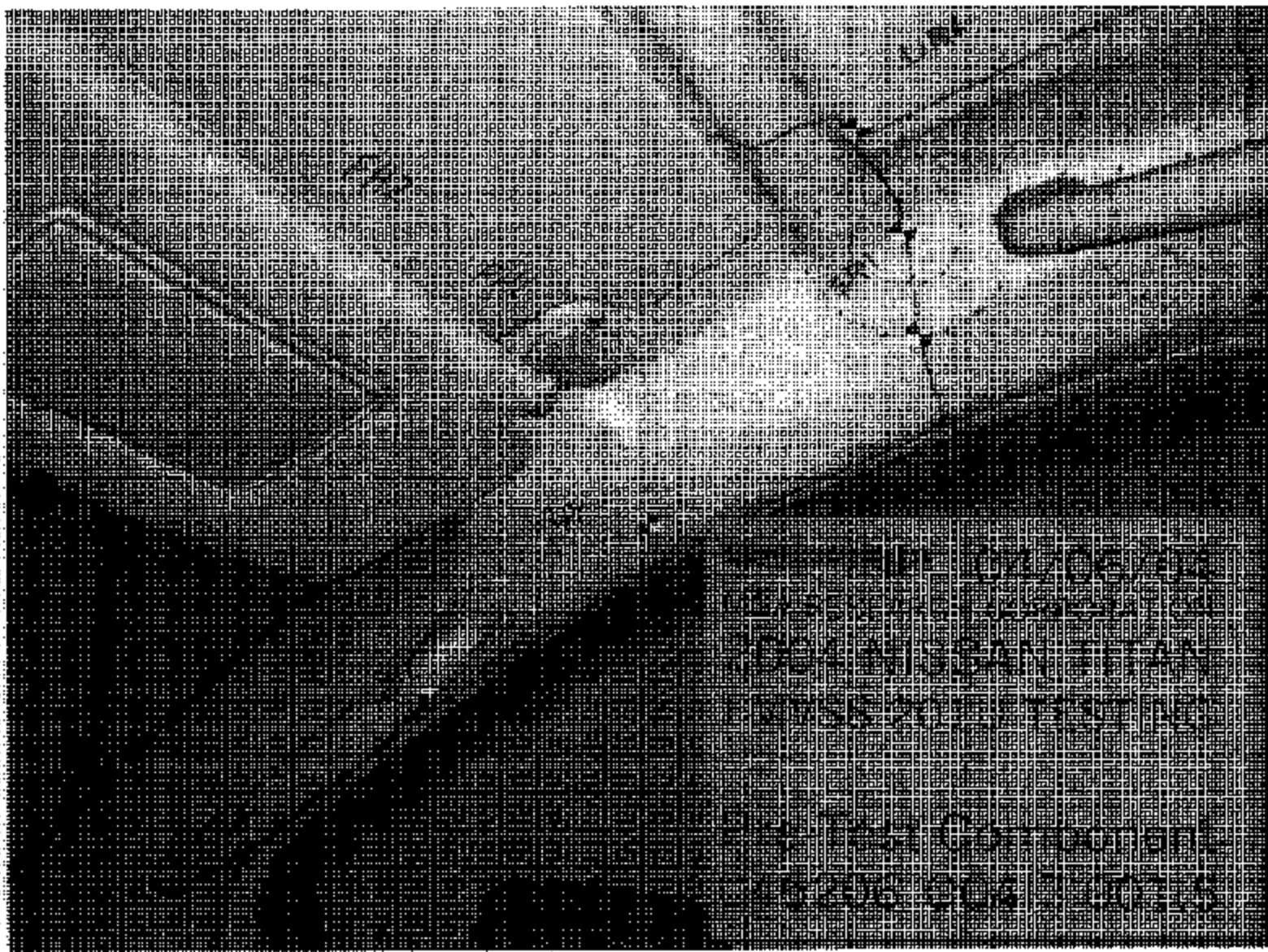


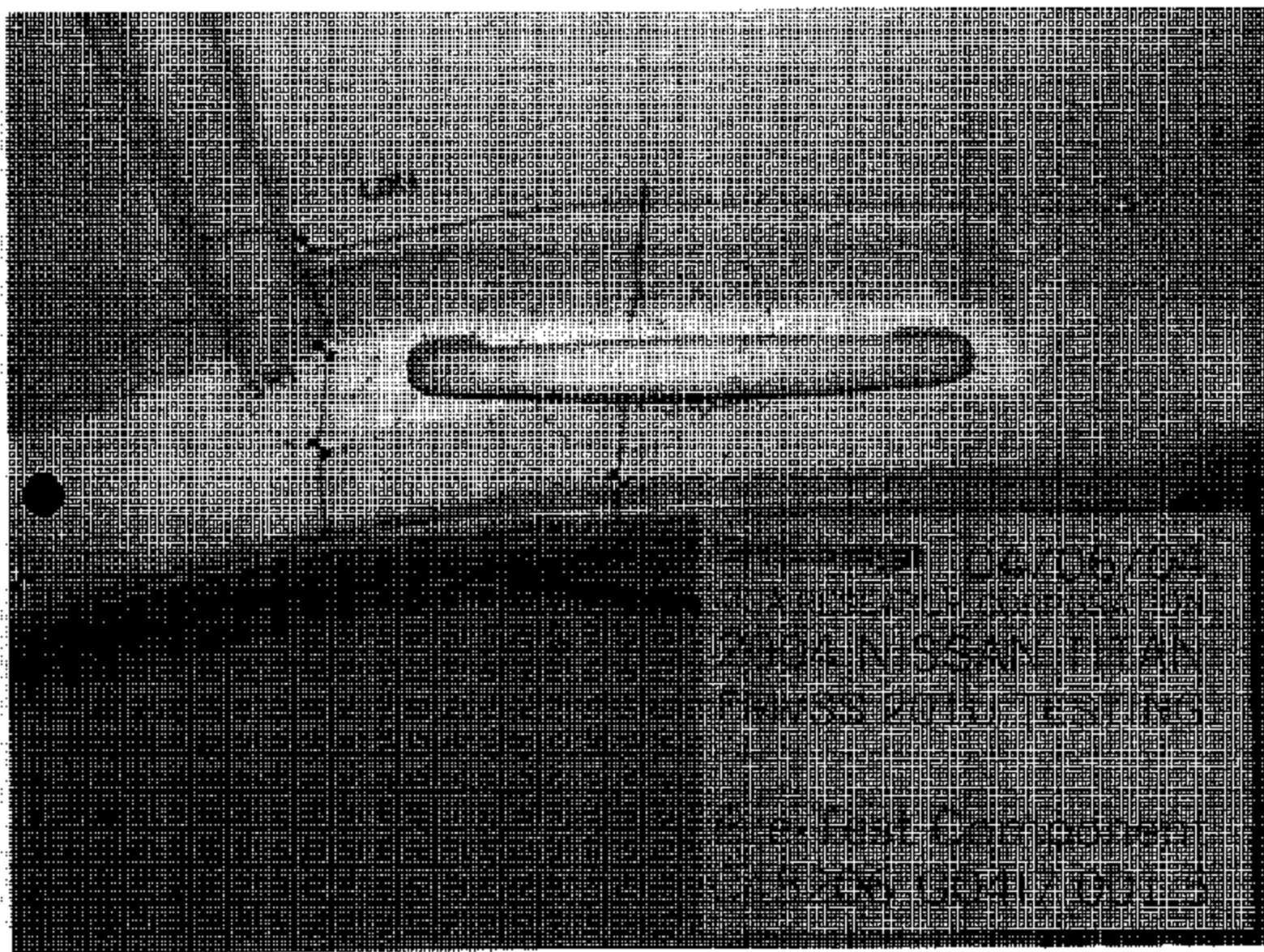


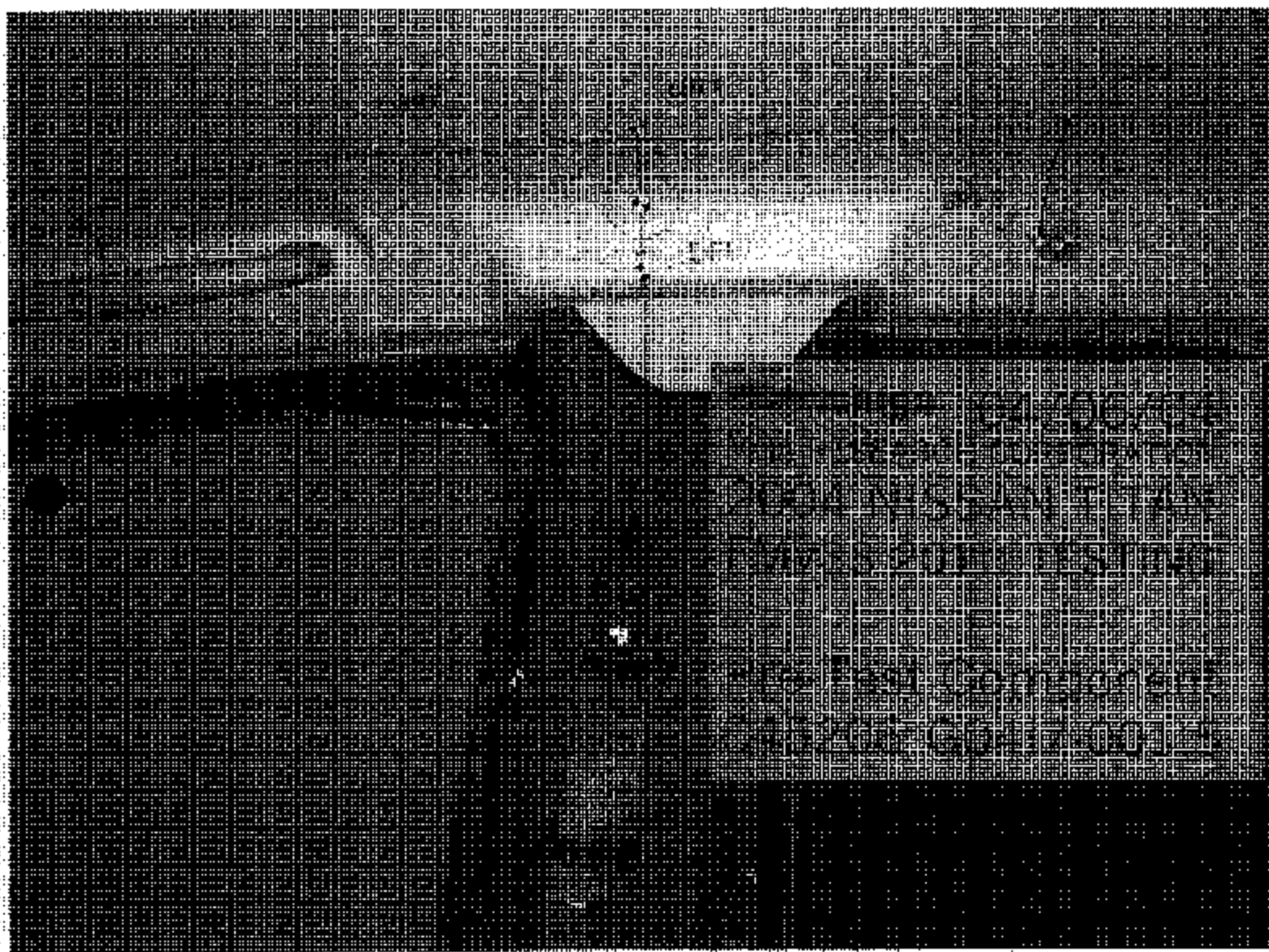






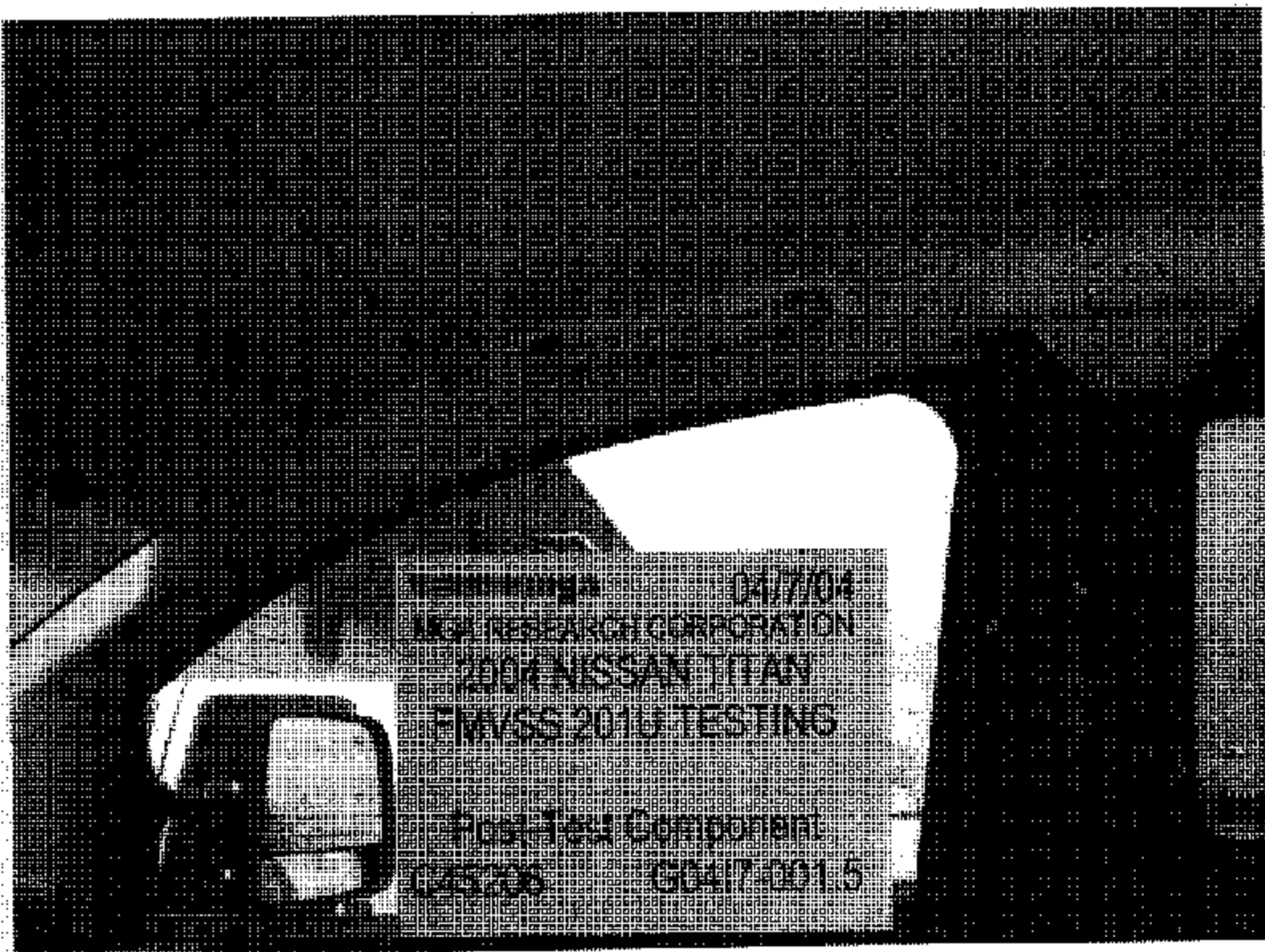


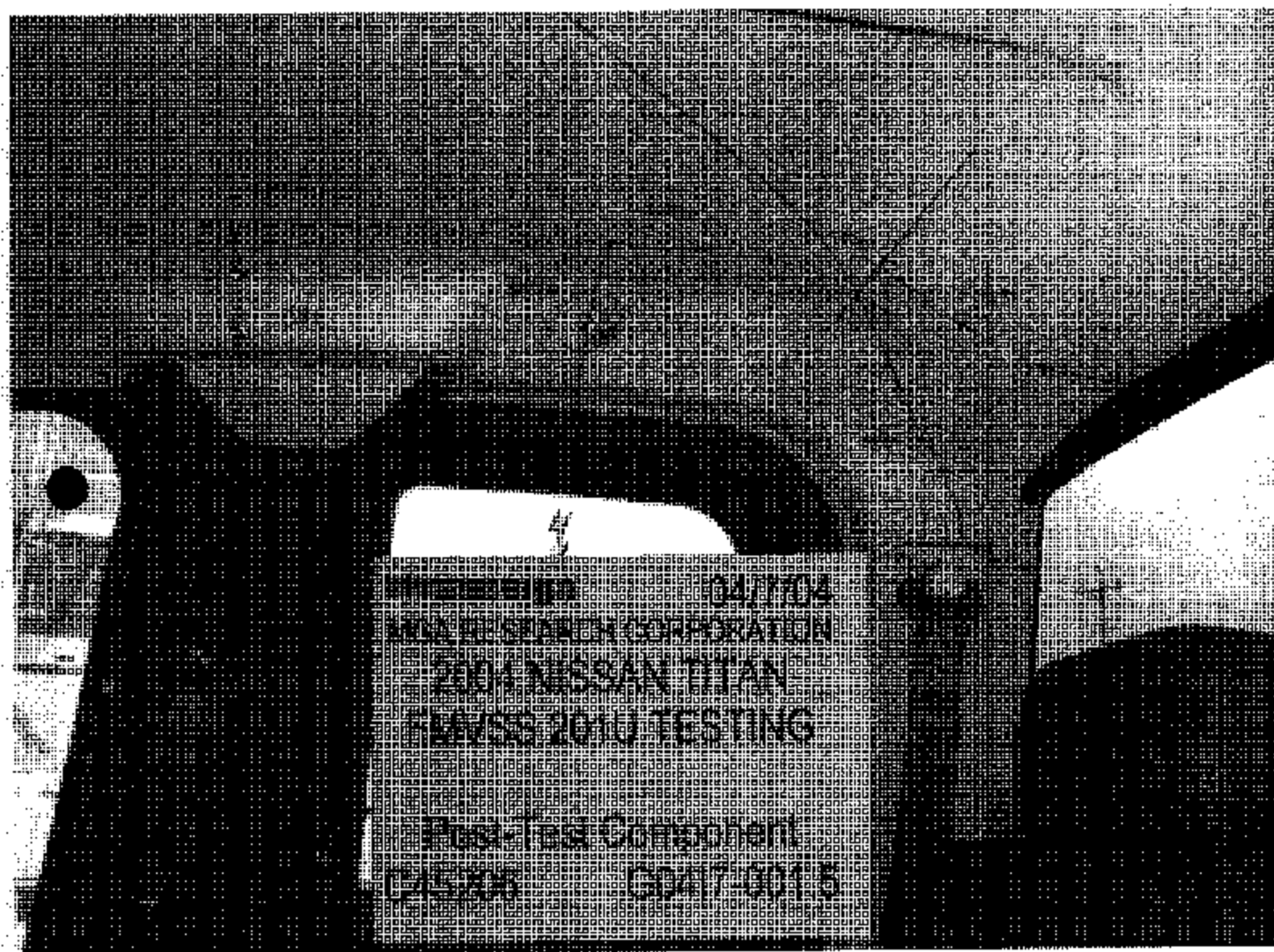












4
ID: 011714
NAME: [REDACTED]
2013 JAN
FBI 2010 TESTING
FBI 2013
FBI 2013

2000
 2001
 2002
 2003
 2004
 2005
 2006
 2007
 2008
 2009
 2010
 2011
 2012
 2013
 2014
 2015
 2016
 2017
 2018
 2019
 2020
 2021
 2022
 2023
 2024
 2025
 2026
 2027
 2028
 2029
 2030
 2031
 2032
 2033
 2034
 2035
 2036
 2037
 2038
 2039
 2040
 2041
 2042
 2043
 2044
 2045
 2046
 2047
 2048
 2049
 2050
 2051
 2052
 2053
 2054
 2055
 2056
 2057
 2058
 2059
 2060
 2061
 2062
 2063
 2064
 2065
 2066
 2067
 2068
 2069
 2070
 2071
 2072
 2073
 2074
 2075
 2076
 2077
 2078
 2079
 2080
 2081
 2082
 2083
 2084
 2085
 2086
 2087
 2088
 2089
 2090
 2091
 2092
 2093
 2094
 2095
 2096
 2097
 2098
 2099
 2100
 2101
 2102
 2103
 2104
 2105
 2106
 2107
 2108
 2109
 2110
 2111
 2112
 2113
 2114
 2115
 2116
 2117
 2118
 2119
 2120
 2121
 2122
 2123
 2124
 2125
 2126
 2127
 2128
 2129
 2130
 2131
 2132
 2133
 2134
 2135
 2136
 2137
 2138
 2139
 2140
 2141
 2142
 2143
 2144
 2145
 2146
 2147
 2148
 2149
 2150
 2151
 2152
 2153
 2154
 2155
 2156
 2157
 2158
 2159
 2160
 2161
 2162
 2163
 2164
 2165
 2166
 2167
 2168
 2169
 2170
 2171
 2172
 2173
 2174
 2175
 2176
 2177
 2178
 2179
 2180
 2181
 2182
 2183
 2184
 2185
 2186
 2187
 2188
 2189
 2190
 2191
 2192
 2193
 2194
 2195
 2196
 2197
 2198
 2199
 2200
 2201
 2202
 2203
 2204
 2205
 2206
 2207
 2208
 2209
 2210
 2211
 2212
 2213
 2214
 2215
 2216
 2217
 2218
 2219
 2220
 2221
 2222
 2223
 2224
 2225
 2226
 2227
 2228
 2229
 2230
 2231
 2232
 2233
 2234
 2235
 2236
 2237
 2238
 2239
 2240
 2241
 2242
 2243
 2244
 2245
 2246
 2247
 2248
 2249
 2250
 2251
 2252
 2253
 2254
 2255
 2256
 2257
 2258
 2259
 2260
 2261
 2262
 2263
 2264
 2265
 2266
 2267
 2268
 2269
 2270
 2271
 2272
 2273
 2274
 2275
 2276
 2277
 2278
 2279
 2280
 2281
 2282
 2283
 2284
 2285
 2286
 2287
 2288
 2289
 2290
 2291
 2292
 2293
 2294
 2295
 2296
 2297
 2298
 2299
 2300
 2301
 2302
 2303
 2304
 2305
 2306
 2307
 2308
 2309
 2310
 2311
 2312
 2313
 2314
 2315
 2316
 2317
 2318
 2319
 2320
 2321
 2322
 2323
 2324
 2325
 2326
 2327
 2328
 2329
 2330
 2331
 2332
 2333
 2334
 2335
 2336
 2337
 2338
 2339
 2340
 2341
 2342
 2343
 2344
 2345
 2346
 2347
 2348
 2349
 2350
 2351
 2352
 2353
 2354
 2355
 2356
 2357
 2358
 2359
 2360
 2361
 2362
 2363
 2364
 2365
 2366
 2367
 2368
 2369
 2370
 2371
 2372
 2373
 2374
 2375
 2376
 2377
 2378
 2379
 2380
 2381
 2382
 2383
 2384
 2385
 2386
 2387
 2388
 2389
 2390
 2391
 2392
 2393
 2394
 2395
 2396
 2397
 2398
 2399
 2400
 2401
 2402
 2403
 2404
 2405
 2406
 2407
 2408
 2409
 2410
 2411
 2412
 2413
 2414
 2415
 2416
 2417
 2418
 2419
 2420
 2421
 2422
 2423
 2424
 2425
 2426
 2427
 2428
 2429
 2430
 2431
 2432
 2433
 2434
 2435
 2436
 2437
 2438
 2439
 2440
 2441
 2442
 2443
 2444
 2445
 2446
 2447
 2448
 2449
 2450
 2451
 2452
 2453
 2454

16. FORMS....Continued

LABORATORY NOTICE OF APPARENT TEST FAILURE TO OVSC

FMVSS NO.: 201U

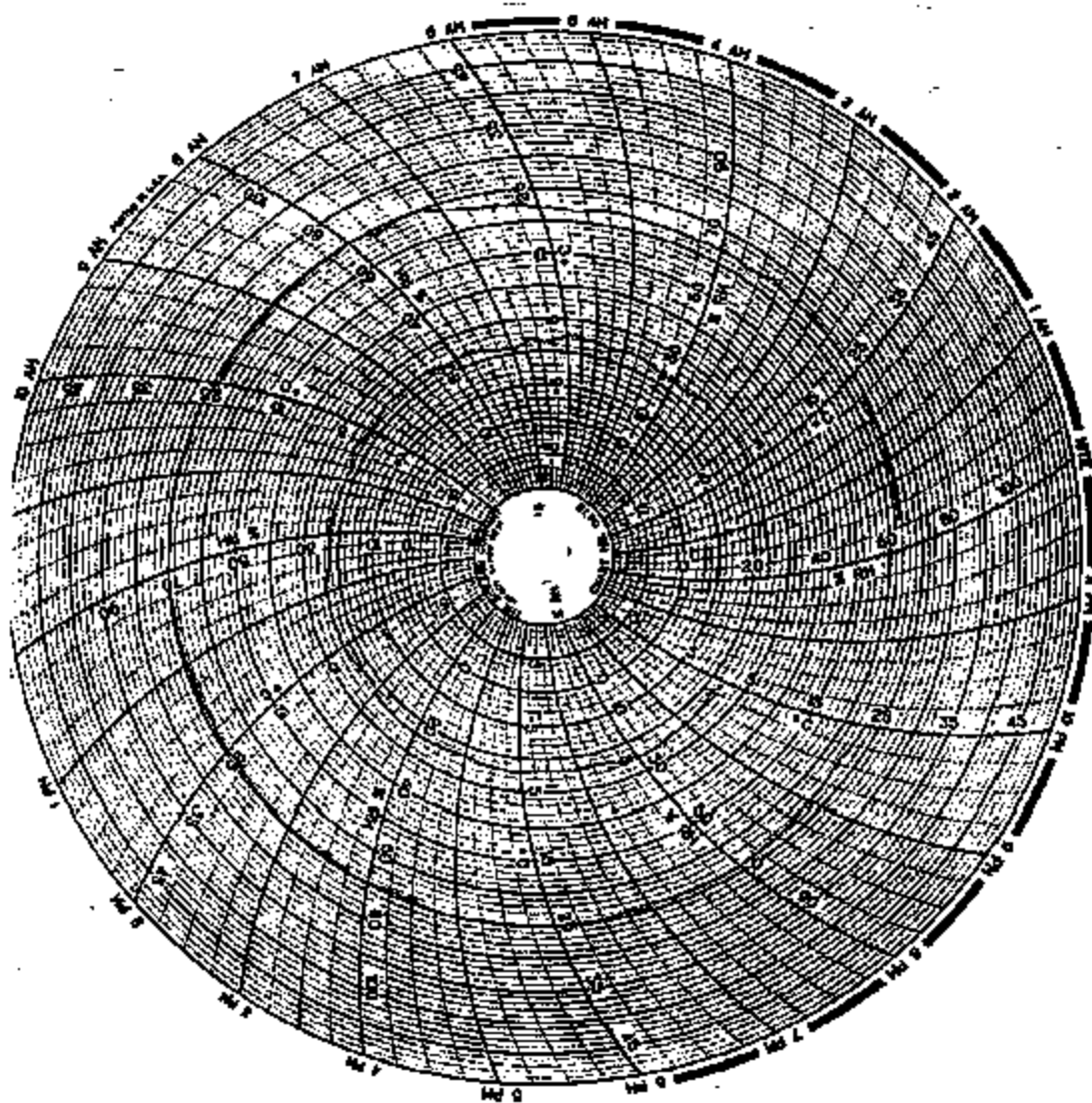
TEST DATE: APRIL 7th, 2004LABORATORY: MGA RESEARCH CORPORATIONCONTRACT NO.: DTNH22-99-C-11005; DELV. ORDER NO.: DTNH22-04-P-01093LABORATORY PROJECT ENGINEER'S NAME: DAVID GOTWALSTEST SPECIMEN DESCRIPTION: 2004 NISSAN TITANVEHICLE NHTSA NO.: CYS206 VIN: 1N6AA06A7YNS00662MFR: NISSAN MOTOR CO. LTD

APPARENT TEST FAILURE DESCRIPTION: ROCK PILLAR TARGET NUMBER 2 (RPT), LOCATED ON THE CORNER OF THE SEAT BELT ASSEMBLY. THE HORIZONTAL AND VERTICAL ANGLES WERE 90 AND 0 DEGREES, RESPECTIVELY. THE CALCULATED HEAD IMPACT CANTAIN (C) WAS 1042, AT AN IMPACT VELOCITY OF 23.8 MPH.

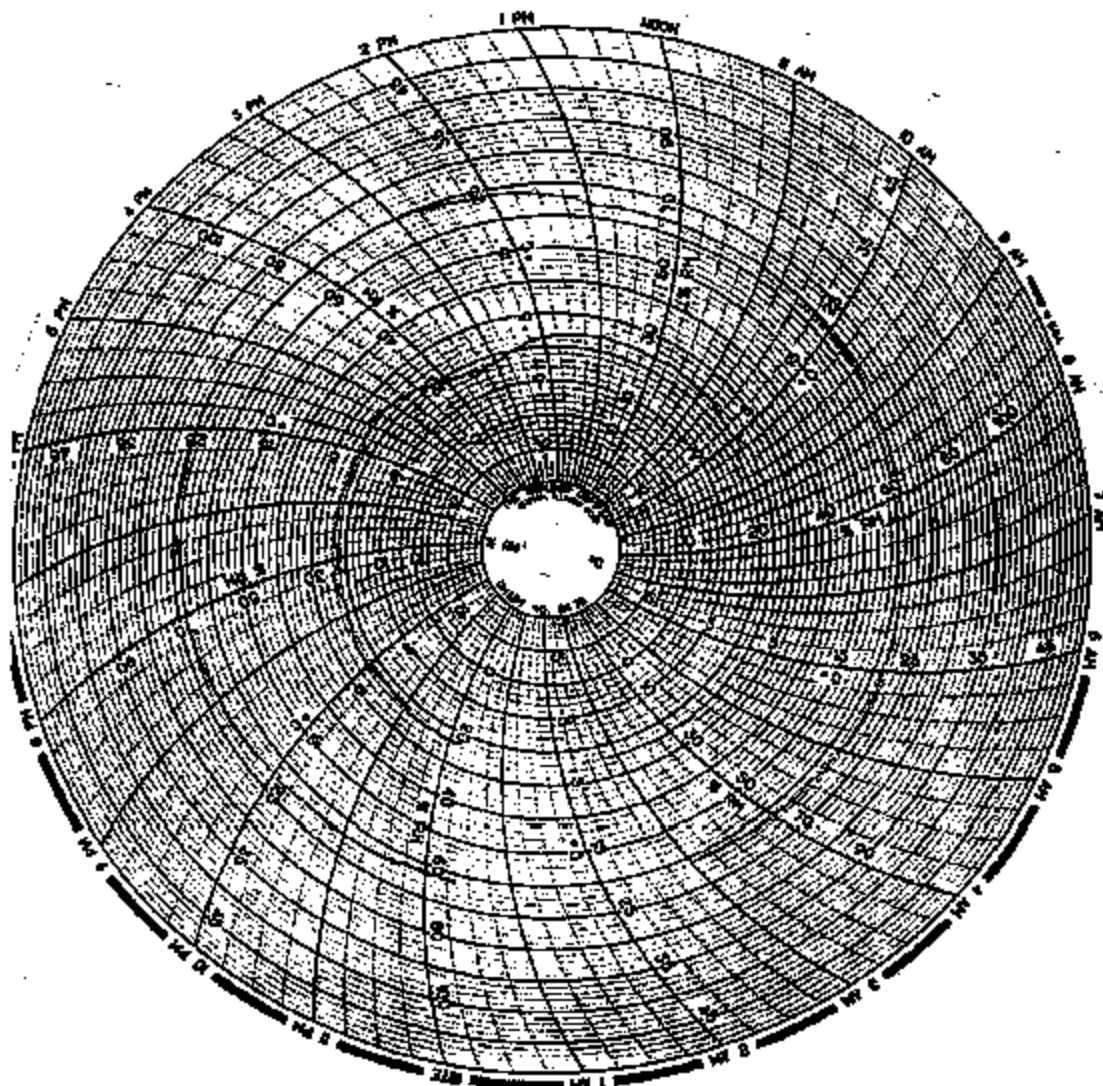
FMVSS REQUIREMENT, PARAGRAPH S: THE HIC(15) SHALL NOT EXCEED 1000 WHEN CALCULATED IN ACCORDANCE WITH THE FOLLOWING FORMULA (HIC(15) = 0.75 * (HIC) + 16.4 WITH HIC = $\left[\frac{1}{t_2 - t_1} \int_{t_1}^{t_2} A_z dt \right]^2 \cdot t_2$
WHERE $A_z = [A_x^2 + A_y^2 + A_z^2]^{1/2}$. t_1 AND t_2 ARE ANY TWO POINTS IN TIME DURING THE IMPACT PULSE SEPARATED BY NOT MORE THAN 36 MILLISECONDS.

NOTIFICATION TO NHTSA (COTR): KAREN MECHILLDATE: 4/9/04 BY: DAVID GOTWALS

REMARKS:



Test Dates: April 6-7, 2004



Test Dates: April 6-7, 2004