REPORT NO: 111-KAR-04-003

SAFETY COMPLIANCE TESTING
FOR FMVSS 111

REARVIEW MIRRORS
(Other Than School Buses)

2004 NISSAN MAXIMA
4 DOOR SEDAN

NHTSA NO. C45204

PREPARED BY:
KARCO ENGINEERING
9270 HOLLY ROAD
ADELANTO, CALIFORNIA 92301

June 17, 2004
FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ASSURANCE
OFFICE OF VEHICLE SAFETY COMPLIANCE
ROOM 8115 (NCR-9H) NUS-7Z1
400 SEVENTH STREET, SW
WASHINGTON, D.C. 20590
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KARCO Engineering

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KARCO Engineering

Approved by:  
Mr. Frank O. Richardson, Program Manager  
KARCO Engineering

FINAL REPORT ACCEPTED BY:

Accepted By:  

Acceptance Date: 6/18/04
Technical Report Documentation Page

<table>
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<td>Mr. Matthew A. Ivory, Project Engineer, KARCO Mr. Frank D. Richardson, Program Manager, KARCO</td>
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<td>8. Performing Organization Report No.</td>
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<td>9. Performing Organization Name and Address</td>
<td>KARCO Engineering 8270 Holly Road Adelanto, California 92301</td>
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<td>16. Abstract</td>
<td>Compliance tests were conducted on the subject 2004 Nissan Maxima 4 Door Sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP111V00 for the determination of FMVSS 111 compliance. There were no apparent test failures.</td>
</tr>
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<td>B-1</td>
<td>Force vs. Displacement and Displacement vs. Time 0°/90°</td>
<td>B-1</td>
</tr>
<tr>
<td>B-2</td>
<td>Force vs. Displacement and Displacement vs. Time 45°/90°</td>
<td>B-2</td>
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<td>B-3</td>
<td>Force vs. Displacement and Displacement vs. Time -45°/90°</td>
<td>B-3</td>
</tr>
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<td>B-4</td>
<td>Force vs. Displacement and Displacement vs. Time -45°/45°</td>
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<td>Force vs. Displacement and Displacement vs. Time 45°/-45°</td>
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</tr>
<tr>
<td>B-7</td>
<td>Force vs. Displacement and Displacement vs. Time -45°/-45°</td>
<td>B-7</td>
</tr>
</tbody>
</table>
SECTION 1

PURPOSE OF COMPLIANCE TEST
1. PURPOSE OF COMPLIANCE TEST

Tests were conducted on a 2004 Maxima, manufactured by Nissan Motor Company, to
determine compliance with FMVSS 111, "Rearview Mirrors (Other than School Buses)". The
purpose of this standard is to reduce the number of deaths and injuries that occur when the driver of
a motor vehicle does not have a clear and reasonably unobstructed view to the rear.

All tests were conducted based on the current National Highway Traffic Safety Administration
(NHTSA), Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-111V-00, dated
October 28, 1999, and corresponding KARCO Engineering test procedure KTP-111, dated April 18,
2004. Detailed procedures for receiving, inspecting, testing and reporting of test results are
described in the test procedures and are not repeated in this report.

This report is organized in sections containing pertinent test information and data tables as
follows:

Section 2 - Test Procedure and Data Summary
Section 3 - Test Results
Appendix A - Photographs
Appendix B - Data Plots
Appendix C - Test Equipment List and Calibration Information
Appendix D - Manufacturer Eyelipse Locations
SECTION 2

COMPLIANCE TEST PROCEDURE and DATA SUMMARY
2. TEST PROCEDURE AND DATA SUMMARY

A 2004 Nissan Maxima 4 Door Sedan was subjected to FMVSS 111 compliance testing. The tests were conducted at KARCO Engineering in Adelanto, California on March 23 through May 25, 2004. Summary data is shown on page 23, Data Sheet No. 8. The following tests were performed:

- Inspection
- Mounting Adequacy Test
- Field-of-View Test, Inside Rearview Mirror
- Field-of-View Test, Driver’s Side Outside Mirror
- Reflectance Test
- Breakaway Test
- Unit Magnification and Convex Mirror Tests

The tests were conducted per the FMVSS 111 test procedure. The significant aspects of the test procedure are described in the following paragraphs.

A. INSPECTION

Inspect the installation of the inside and outside rearview mirrors.

B. MOUNTING ADEQUACY TEST – ALL REARVIEW MIRRORS

B.1 INSIDE MIRROR (§5.1.2)

Determine that the mirror is securely mounted and determine the positive and negative angles of adjustment for both the vertical and horizontal directions.

B.2 OUTSIDE MIRROR(S) (§5.2.2 and §5.3)

Determine that the mirror(s) is (are) securely mounted. Determine that the driver’s side mirror can be tilted in both horizontal and vertical directions from the driver’s seated position. Determine that the passenger’s side mirror is capable of adjustment by tilting in both the horizontal and vertical directions. Determine the positive and negative angles of adjustment for both horizontal and vertical directions for all outside mirrors. Determine that all outside mirrors are free of sharp points or edges that could contribute to pedestrian injury.
C. FIELD-OF-VIEW TEST – INSIDE REARVIEW MIRROR

C.1 REQUIREMENTS (§5.1.1)

The mirror shall provide a field of view with an included horizontal angle measured from the projected eye point of at least 20 degrees, and sufficient vertical angle to provide a view of a level road surface extending to the horizon beginning at a point not greater than 0.1 m (200 feet) to the rear of the vehicle when the vehicle is occupied by the driver and four passengers or the designated occupant capacity, if less. The line of sight may be partially obscured by seated occupants or by head restraints.

Each car whose inside mirror does not meet the field of view requirements of §5.1.1 shall have an outside mirror of unit magnification or a convex mirror installed on the passenger’s side. (§5.3)

D. FIELD-OF-VIEW TEST, DRIVER’S SIDE OUTSIDE REARVIEW MIRROR

D.1 REQUIREMENTS (§5.2)

Each passenger car shall have an outside mirror of unit magnification. The mirror shall provide the driver a view of a level road surface extending to the horizon from a line, perpendicular to a longitudinal plane tangent to the driver’s side of the vehicle at the widest point, extending 2.4 meters (8 feet) out from the tangent plane 10.7 meters (35 feet) behind the driver’s eyes, with the seat in the rearmost position. The line of sight may be partially obscured by rear body or fender contours. (§5.2.1)

Neither the mirror nor the mounting shall protrude farther than the widest part of the vehicle body except to the extent necessary to produce a field of view meeting or exceeding the requirements of §5.2.1. The mirror shall not be obscured by the un-wiped portion of the windshield. (§5.2.2)

E. REFLECTANCE TEST – ALL MIRRORS

E.1 REQUIREMENT (§11)

All single reflectance mirrors shall have an average reflectance of at least 35 percent. If a mirror is capable of multiple reflectance levels, the minimum reflectance level in the day mode shall be at least 35 percent and the minimum reflectance level in the night mode shall be at least 4 percent. The average reflectance of any mirror required by this standard shall be determined in accordance with SAE Recommended Practice J864, OCT 84.

F. BREAKAWAY TEST – INSIDE REARVIEW MIRROR

F.1 REQUIREMENTS (§5.1.2)

If the mirror is in the head impact area, the mounting shall deflect, collapse, or break away without leaving sharp edges when the reflective surface of the mirror is subjected to a force of 400 N (90 lb) in any forward direction that is not more than 45 degrees from the longitudinal direction.
G. UNIT MAGNIFICATION AND CONVEX MIRROR TESTS

G.1 REQUIREMENTS FOR PASSENGER CARS (55.3 and 55.4)

The driver's side rearview mirror and the inside rearview mirror shall be unit magnification. If the field-of-view requirements are not met with the inside rearview mirror then the passenger's side rearview mirror is required. It can be either unit magnification or convex.

If the passenger's side mirror is convex, the average radius of curvature shall be not less than 839 mm (35 inches) and not more than 1651 millimeters (65 inches) and shall not deviate from the average by more than plus or minus 12.5 percent. The convex mirror shall have permanently and indelibly marked at the lower edge of the mirror's reflective surface in letters not less than 4.8 mm (3/16 inch) nor more than 6.4 mm (0.25 inch) high the words, "Objects in Mirror Are Closer Than They Appear."
3. TEST DATA

The results of FMVSS 111 compliance tests that were conducted on the 2004 Nissan Maxima 4 Door Sedan on March 23 through May 25, 2004 to determine compliance with FMVSS 111, "Rearview Mirrors (other than School Buses)" are presented in this section.
## DATA SHEET NO. 1

### VEHICLE INSPECTION AND IDENTIFICATION

#### TEST VEHICLE INFORMATION

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>NISSAN MOTOR COMPANY</th>
<th>VIN</th>
<th>1N4BA41E44C988150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Date</td>
<td>10/03</td>
<td>Delivery Date</td>
<td>12/31/03</td>
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<tr>
<td>Dealer</td>
<td>EMPIRE NISSAN</td>
<td>NHTSA No.</td>
<td>C46204</td>
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<tr>
<td>Odometer Reading (mi.)</td>
<td>3,6</td>
<td>Fuel Type</td>
<td>GAS</td>
</tr>
<tr>
<td>Engine Displacement</td>
<td>3.5</td>
<td>Cylinders</td>
<td>6</td>
</tr>
<tr>
<td>Transmission</td>
<td>4-SPEED AUTOMATIC</td>
<td>Final Drive</td>
<td>FRONT</td>
</tr>
<tr>
<td>Engine Placement</td>
<td>TRANSVERSE</td>
<td>Color</td>
<td>BLUE</td>
</tr>
<tr>
<td>Recommend Tire Size</td>
<td>P245/45 R18 98V</td>
<td>Type of Spare</td>
<td>T145/80 r17</td>
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<tr>
<td>Tire Size on Vehicle</td>
<td>P245/45 R18 98V</td>
<td>Manufacturer</td>
<td>GOODYEAR</td>
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<td>GVWR</td>
<td>4546</td>
<td>Cargo Capacity</td>
<td>860</td>
</tr>
<tr>
<td>GAWR Front</td>
<td>2469</td>
<td>GAWR Rear</td>
<td>2097</td>
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<tr>
<td>Air Conditioning</td>
<td>YES</td>
<td>Power Steering</td>
<td>YES</td>
</tr>
<tr>
<td>Power Brakes</td>
<td>YES</td>
<td>AM/FM/Cassette</td>
<td>YES</td>
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<tr>
<td>Disc Brakes (Front)</td>
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<td>Disc Brakes (Rear)</td>
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</tr>
<tr>
<td>Power Windows</td>
<td>YES</td>
<td>Tilt Steering</td>
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<tr>
<td>Anti-lock Brakes (ABS)</td>
<td>YES</td>
<td>Power Seats</td>
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<td>Driver Airbag</td>
<td>YES</td>
<td>Passenger Airbag</td>
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#### TEST VEHICLE ATTITUDE (mm)

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<th>LF</th>
<th>RF</th>
<th>LR</th>
<th>RR</th>
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<tr>
<td>As Delivered</td>
<td>748</td>
<td>753</td>
<td>711</td>
<td>719</td>
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<tr>
<td>As Tested</td>
<td>725</td>
<td>732</td>
<td>671</td>
<td>677</td>
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<td>Rear View Mirror</td>
<td>1248</td>
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<tr>
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<td>2004</td>
<td>MAKE</td>
</tr>
<tr>
<td>MODEL</td>
<td>MAXIMA</td>
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<td>NHTSA NO.</td>
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<td>03/23/04</td>
<td>TEMPERATURE:</td>
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**LEGEND:**  
LE = Left Eye; RE = Right Eye; P = Neck Pivot Point, SRP = Seating Reference Point

**COORDINATE SYSTEM:**  
X = Longitudinal Dimension  
Y = Lateral Dimension  
Z = Vertical Dimension

Positive Values are as follows:  
X = Forward of Reference Point  
Y = Outboard of Reference Point (to driver's side)  
Z = Above Reference Point

Provide Reference Point or Body Fiduciary Point that dimensions below are measured from. (Point should be usable by laboratory personnel, i.e., center of an anchorage bolt, door jam latch, etc.).

<table>
<thead>
<tr>
<th>COORDINATE</th>
<th>LEFT SIDE MIRROR</th>
<th>INSIDE MIRROR</th>
<th>RIGHT SIDE MIRROR</th>
<th>SRP</th>
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<tbody>
<tr>
<td>ES</td>
<td>P1</td>
<td>LE1</td>
<td>RE1</td>
<td>P2</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>-255.6</td>
<td>-306.8</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td>-190.1</td>
<td>-162.0</td>
<td></td>
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<td>Z</td>
<td></td>
<td>806.8</td>
<td>696.8</td>
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Mirror Mfr., Model, and Part No.  
Ichikoh Industries  
96302  
7Y000/2/3/4/5/6/7/8/9/10  
96302  
7Y100/2/3/4/5/6/7/8/9/10  
96302  
7Y300/2/3/4/5/6/7/8/9/10  
96301  
7Y000/2/3/4/5/6/7/8/9/10  
96301  
7Y100/2/3/4/5/6/7/8/9/10  
96301  
7Y300/2/3/4/5/6/7/8/9/10

SRP Travel and Eye-Ellipse  
N/A

Reference Point - Front Outer seat track mounting bolt. Co-ordinates X-1074.0, Y-590.0, Z-63.2
DATA SHEET NO. 1... (Continued)

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<td>INSIDE REARVIEW—</td>
<td>WINDSHIELD MOUNTED DAY/NIGHT</td>
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<tr>
<td>DRIVER'S SIDE OUTSIDE—</td>
<td>FLAT</td>
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<td>PASSENGER'S SIDE OUTSIDE—</td>
<td>CONVEX</td>
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<tr>
<td>LOCATION AND DESCRIPTION OF FIDUCIAL MARKS:</td>
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<td>MAXIMUM NUMBER OF OCCUPANTS:</td>
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RESULTS OR RECEIVING INSPECTION:

PASS -- X
FAIL --
CONDITIONAL --

CONDITIONS:

DISPOSITION/ACTION:

REMARKS:

RECORDED BY: PABLO VEGA  DATE: 05/25/04

APPROVED BY: MATTHEW A. IVORY  DATE: 05/25/04
DATA SHEET NO. 2

MOUNTING AND TILTING ADEQUACY TEST

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### MIRROR MOUNTING PROVIDES A STABLE SUPPORT

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**INSIDE REARVIEW MIRROR**  
**DRIVER SIDE OUTSIDE MIRROR**  
**PASSENGER SIDE OUTSIDE MIRROR**

### OUTSIDE MIRRORS FREE OF SHARP POINTS OR EDGES

<table>
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**DRIVER SIDE OUTSIDE MIRROR**  
**PASSENGER SIDE OUTSIDE MIRROR**

### MIRROR IS ADJUSTABLE VERTICALLY & HORIZONTALLY

<table>
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</table>

**INSIDE REARVIEW MIRROR**  
**DRIVER SIDE OUTSIDE MIRROR**  
**PASSENGER SIDE OUTSIDE MIRROR**

### DRIVER’S OUTSIDE MIRROR ADJUSTABLE FROM THE DRIVER’S SEATED POSITION

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
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<tbody>
<tr>
<td></td>
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</table>

**DRIVER SIDE OUTSIDE MIRROR**

### MIRROR ADJUSTMENT ANGLE

<table>
<thead>
<tr>
<th>V+</th>
<th>V-</th>
<th>H+</th>
<th>H-</th>
</tr>
</thead>
<tbody>
<tr>
<td>90°</td>
<td>90°</td>
<td>90°</td>
<td>90°</td>
</tr>
</tbody>
</table>

**INSIDE REARVIEW MIRROR**  
**DRIVER SIDE OUTSIDE MIRROR**  
**PASSENGER SIDE OUTSIDE MIRROR**

#### THIS SECTION IS RESERVED FOR MPVS, TRUCKS AND BUSES, OTHER THAN SCHOOL BUSES, NOT CONFORMING TO PASSENGER CAR REQUIREMENTS

### MIRROR PROVIDES A VIEW TO THE REAR ALONG BOTH SIDES OF THE VEHICLE

<table>
<thead>
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<th>PASS</th>
<th>FAIL</th>
<th>CONDITIONAL</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

**DRIVER SIDE OUTSIDE MIRROR**  
**PASSENGER SIDE OUTSIDE MIRROR**

#### TEST STATUS: PASSED — X FAILED —

**RECORDED BY:** PABLO VEGA  
**DATE:** 03/23/04

**APPROVED BY:** MATTHEW A. IVORY  
**DATE:** 03/23/04

111-KAR-04-003
# DATA SHEET NO. 3

**FIELD OF VIEW TEST - INSIDE REARVIEW MIRROR**

<table>
<thead>
<tr>
<th>VEHICLE</th>
<th>YEAR</th>
<th>MAKE</th>
<th>NHTSA NO.</th>
<th>TEST DATE:</th>
<th>TEMPERATURE:</th>
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<td></td>
<td>2004</td>
<td>NISSAN</td>
<td>C45204</td>
<td>03/23/04</td>
<td>85°F</td>
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</table>

**E** Distance from center of mirror to projected eye point location = 550.0 mm

**A** Distance from rear of vehicle to projected eye point location = 3490.0 mm

**X1** Distance from rear of vehicle to field of view grid = 8211.0 mm

**Z1** Vertical distance to lowest point of field of view at distance X1 = 627.0 mm

**Z2** Height of center of mirror = 1249.0 mm

**X2** Distance from rear of vehicle where the road surface is first visible

\[
X2 = \left[\frac{\left(Z2 \times X1\right) + \left(Z1 \times A\right)}{Z2 - Z1}\right] = \frac{\left(Z2 \times Z1\right) + \left(Z1 \times X1\right)}{Z2 - Z1}
\]

(S111 REQUIREMENT = 61m maximum)

\[
X2 = \frac{\left(1249 \times Z1\right) + \left(Z1 \times X1\right)}{1249 - Z1}
\]

\[X2 = 2007.2\ mm\ (20.0\ m)\]

<table>
<thead>
<tr>
<th>EYE LOCATION</th>
<th>MONOCULAR DATA (ALR &amp; ARL ARE ANGLES)</th>
<th>YL (mm)</th>
<th>YR (mm)</th>
<th>ALR (°)</th>
<th>ARL (°)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEFT EYE POINT</td>
<td>YLL = 2543.0</td>
<td>YRL = 2073.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RIGHT EYE POINT</td>
<td>YLR = 2300.0</td>
<td>YRR = 2543.0</td>
<td></td>
<td>12.5</td>
<td></td>
</tr>
</tbody>
</table>

**CALCULATED HORIZONTAL AMBINOCULAR VIEW ANGLE (AB)**

\[
\text{ANGLE AB} = \text{ANGLE ALR} + \text{ANGLE ARL}
\]

\[
\text{ALR} = \tan^{-1}\left[\frac{1\ YRL}{X1 + A}\right] \quad \text{ARL} = \tan^{-1}\left[\frac{1\ YRR}{X1 + A}\right]
\]

\[
\text{ANGLE AB} = \boxed{25.0°} \quad (S111\ REQUIREMENT = 20\ degrees\ minimum)
\]

**TEST STATUS:** PASSED — [ ] FAILED — [x]
DATA SHEET NO. 3... (Continued)

DRIVER SIDE MIRROR (S5.2)

<table>
<thead>
<tr>
<th>Description</th>
<th>YES</th>
<th>NO</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIRROR OBLSCURED BY UNWIPED PORTION OF WINDSHIELD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEIGHT OF TARGET DISC ON MIRROR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISTANCE OF TARGET DISC ON MIRROR FROM VEHICLE TANGENT PLANE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TARGET DISC LOCATION RELATIVE TO VEHICLE TANGENT PLANE</td>
<td>INBOARD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENTIRE TRIANGULAR TEST TARGET AREA ON SCREEN VISIBLE</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIRROR PROTRUDES BEYOND VEHICLE TANGENT PLANE</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROTRUSION REQUIRED TO MEET FIELD OF VIEW REQUIREMENT</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST STATUS:</th>
<th>PASSED</th>
<th>X</th>
<th>FAILED</th>
</tr>
</thead>
</table>

PASSENGER SIDE MIRROR (S5.3 or MFG. OPTION)

<table>
<thead>
<tr>
<th>Description</th>
<th>CONVEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASSENGER SIDE MIRROR TYPE (convex or unit magnification)</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:

VEHICLE ATTITUDE AND GROUND LEVEL WERE RAISED 4".

RECORDED BY: PABLO VEGA                                      DATE: 03/23/04

APPROVED BY: MATTHEW A. IVORY                                 DATE: 03/23/04

111-KAR-04-003
REQUIRED FIELD OF VIEW AS SEEN IN DRIVER'S SIDE OUTSIDE MIRROR

DRIVER SIDE OUTSIDE MIRROR
FIELD OF VIEW TEST SETUP

SCREEN FOR REQUIRED FIELD OF VIEW
10.7 m (35) BEHIND DRIVER'S EYES

PLANE TANGENT TO INDOOR POINT OF VEHICLE

REARMOST EYE POSITION
DATA SHEET NO. 4

REFLECTANCE TEST

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MAKE</th>
<th>MODEL</th>
<th>BODY STYLE</th>
<th>NHTSA NO.</th>
<th>VIN</th>
<th>TEST DATE</th>
<th>TEMPERATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>NISSAN</td>
<td>MAXIMA</td>
<td>4 DOORSEDAN</td>
<td>C45204</td>
<td>1N4BA41E44C888180</td>
<td>05/20/04</td>
<td>72°F</td>
</tr>
</tbody>
</table>

DESCRIPTION OF TEST APPARATUS: THE APPARATUS CONSISTS OF AN INCANDESCENT TUNGSTEN FILAMENT LAMP OPERATING AT A NOMINAL COLOR TEMPERATURE OF 2,856 K, COLLIMATING OPTICS, A SAMPLE HOLDER POSITIONED AT 26°, A SILICON PHOTOCELL, AND A FLUKE 45 DUAL DISPLAY MULTIMETER (CALIBRATION DUE DATE 3-21-05). REFLECTANCE TESTS ARE CONDUCTED IN A 4'X6' WOODEN CABINET PAINTED FLAT BLACK.

MIRROR DESCRIPTION: INTERIOR DAY/NIGHT REAR VIEW MIRROR

VOLTAGE READING FROM CALIBRATION (Average Value): 300 mV

VOLTAGE READING FROM LIGHT REFLECTED BY DAY MIRROR (Average Value): 282 mV

### REFLECTOMETER VOLTAGE READINGS

<table>
<thead>
<tr>
<th>TEST NO.</th>
<th>DAY MIRROR</th>
<th>NIGHT MIRROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>282 mV</td>
<td>119 mV</td>
</tr>
<tr>
<td>2</td>
<td>282 mV</td>
<td>130 mV</td>
</tr>
<tr>
<td>3</td>
<td>282 mV</td>
<td>127 mV</td>
</tr>
<tr>
<td>4</td>
<td>282 mV</td>
<td>137 mV</td>
</tr>
<tr>
<td>5</td>
<td>283 mV</td>
<td>285 mV*</td>
</tr>
</tbody>
</table>

*Day/night portion of mirror was electronic and required a voltage to keep the night portion active. As the tests progressed, the voltage of our supply battery dropped causing the reflectance level to increase. The mirror still met the reflectance requirements of FMVSS 111.

REFLECTANCE (Day) = Voltage (Refl)/Voltage (Cal) = 0.940 x 100 = 94.0 percent  
(Min. Required = 35%)

VOLTAGE READING FROM CALIBRATION (Average Value) = 287 mV

VOLTAGE READING FROM LIGHT REFLECTED BY NIGHT MIRROR (Average Value): 155 mV

REFLECTANCE (Night) = Voltage (Refl)/Voltage (Cal) = 0.525 x 100 = 52.5 percent  
(Min. Required = 4%)

NOTE: If meter reading directly in percent is used, record only percent.
DATA SHEET NO. 4 (Continued)

MIRROR DESCRIPTION: DRIVER SIDE OUTSIDE MIRROR.

VOLTAGE READING FROM CALIBRATION (Average Value): \(300 \text{ mV}\)

VOLTAGE READING FROM LIGHT REFLECTED BY DAY MIRROR (Average Value): \(288 \text{ mV}\)

<table>
<thead>
<tr>
<th>REFLECTOMETER VOLTAGE READINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST NO. 1</td>
</tr>
<tr>
<td>TEST NO. 2</td>
</tr>
<tr>
<td>TEST NO. 3</td>
</tr>
<tr>
<td>TEST NO. 4</td>
</tr>
<tr>
<td>TEST NO. 5</td>
</tr>
</tbody>
</table>

REFLECTANCE (Day) = Voltage (Raf) / Voltage (Cal) = \(0.961 \times 100 = 96.1\) percent
(Min. Required = 35%)

VOLTAGE READING FROM CALIBRATION (Average Value) = \(297 \text{ mV}\)

NOTE: If meter reading directly in percent is used, record only percent

<table>
<thead>
<tr>
<th>TEST STATUS:</th>
<th>PASSED —</th>
<th>X</th>
<th>FAILED —</th>
</tr>
</thead>
</table>

RECORDED BY: PABLO VEGA  DATE: 05/20/04

APPROVED BY: MATTHEW A. IVORY  DATE: 05/20/04
DATA SHEET NO. 5

BREAKAWAY TEST - INSIDE REARVIEW MIRROR

<table>
<thead>
<tr>
<th>VEHICLE</th>
<th>YEAR</th>
<th>MAKE</th>
<th>BODY STYLE</th>
<th>MODEL</th>
<th>VIN</th>
<th>TEST DATE</th>
<th>TEMPERATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2004</td>
<td>NISSAN</td>
<td>4 DOOR SEDAN</td>
<td>MAXIMA</td>
<td>C45204</td>
<td>5/25/04</td>
<td>86°F</td>
</tr>
</tbody>
</table>

MOUNTING OF MIRROR (INSIDE) DESCRIPTION: TAB GLUED TO WINDSHIELD. MIRROR BASE SLIPS OVER BASE AND HELD IN PLACE WITH SET SCREW.

(Requirement: the mirror shall deflect, collapse or break away when it is subjected to a force of 400 N or less)

<table>
<thead>
<tr>
<th>TEST NO.</th>
<th>LOAD DIRECTION VERTICAL/HORIZONTAL</th>
<th>MAXIMUM FORCE (N)</th>
<th>DISPLACEMENT (MM)</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-90 DEGREES</td>
<td>139.1</td>
<td>15.4</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>+45/0 DEGREES</td>
<td>261.3</td>
<td>6.6</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>-45/90 DEGREES</td>
<td>189.7</td>
<td>14.9</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>-45/+45 DEGREES</td>
<td>102.7</td>
<td>32.2</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>+45/+45 DEGREES</td>
<td>221.9</td>
<td>50.7</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>+45/-45 DEGREES</td>
<td>208.8</td>
<td>16.4</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>-45/-45 DEGREES</td>
<td>120.6</td>
<td>36.0</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:

111-KAR-04-003
DATA SHEET NO. 5 (Continued)

BREAKAWAY TEST - INSIDE REARVIEW MIRROR FAILURE TYPE - DESCRIPTION:

FAILURE TYPE - DESCRIPTION:  NONE

TEST STATUS:  PASSED — X FAILED —

REMARKS:

RECORDED BY:  MICHAEL DUNLAP  DATE:  05/25/04

APPROVED BY:  MATTHEW A. IVORY  DATE:  05/25/04

111-KAR-04-003
DATA SHEET NO. 6
UNIT MAGNIFICATION AND CONVEX MIRROR TESTS

<table>
<thead>
<tr>
<th>VEHICLE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td>2004</td>
</tr>
<tr>
<td>MAKE</td>
<td>NISSAN</td>
</tr>
<tr>
<td>MODEL</td>
<td>MAXIMA</td>
</tr>
<tr>
<td>BODY STYLE</td>
<td>4 DOOR SEDAN</td>
</tr>
<tr>
<td>NHTSA NO.</td>
<td>C45204</td>
</tr>
<tr>
<td>VIN</td>
<td>1N4BA41E44C888180</td>
</tr>
<tr>
<td>TEST DATE:</td>
<td>07/01/02</td>
</tr>
<tr>
<td>TEMPERATURE:</td>
<td>82°F</td>
</tr>
</tbody>
</table>

DESCRIPTION OF TEST APPARATUS: 3-POINT LINEAR SPHEROMETER MANUFACTURED BY AMERICAN OPTICAL CORPORATION, GENEVA LENS MEASURE M067 1.53. SERIAL NUMBER 78622. THE SPHEROMETER USED DID NOT MEET THE ACCURACY REQUIREMENTS OF FMVSS 111. GAGE MEASURED IN DIOPTERS. RADIUS OF CURVATURE WAS CALCULATED USING THE EQUATION:

\[
\text{RADIUS IN INCHES} = \frac{630(0.03937)}{\text{GAGE READING}}
\]

DRIVER'S SIDE & INSIDE REARVIEW MIRRORS:

<table>
<thead>
<tr>
<th>DRIVER SIDE MIRROR</th>
<th>INSIDE MIRROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST POSITION</td>
<td>DIAL READINGS</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>

All dial indicator readings for unit magnification mirrors must be zero.
**DATA SHEET NO. 8 (Continued)**

**UNIT MAGNIFICATION AND CONVEX MIRROR TESTS**

**PASSENGER SIDE REARVIEW MIRROR:**

**CONVERSION TABLE FROM SPHEROMETER DIAL READING TO RADIUS OF CURVATURE**

<table>
<thead>
<tr>
<th>TEST POSITION</th>
<th>DIAL READINGS (DIOPTERS) Passenger</th>
<th>RADIUS OF CURVATURE (mm)</th>
<th>DEVIATION BETWEEN THE AVERAGE RADIUS OF CURVATURE AND THE TEST POSITION RADIUS OF CURVATURE (mm)</th>
<th>PERCENT DEVIATION FROM THE AVERAGE RADIUS OF CURVATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>0.300</td>
<td>1778.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Average Radius of Curvature</td>
<td>1778.0</td>
<td>Greatest percent Deviation</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**REMARKS:**

MIRROR NOT REQUIRED TO MEET FMVSS 111 REQUIREMENTS.
UNIT MAGNIFICATION AND CONVEX MIRROR TESTS

PASSENGER'S SIDE REARVIEW MIRROR

IF CONVEX, ARE THERE ANY DISCONTINUITIES IN THE SLOPE OF THE MIRROR SURFACE

X

IF CONVEX, ARE THE WORDS, "OBJECTS IN THE MIRROR ARE CLOSER THAN THEY APPEAR" PRESENT

YES _X_ NO __

IF CONVEX, MEASURE LETTER HEIGHT OF WORDS

___5.0___ mm

IF CONVEX, LETTERS ARE NOT < 4.8 mm OR > 6.4 mm HIGH

YES _X_ NO __

IF CONVEX, RADIUS OF CURVATURE NOT < 889 mm OR > 1651 mm

YES _X_ NO __

IF CONVEX, THE GREATEST PERCENT DEVIATION FROM AVERAGE RADIUS OF CURVATURE IS ± 12.5 %

YES _X_ NO __

IF UNIT MAGNIFICATION, ALL DIAL READINGS ARE ZERO ± 0.

YES _N/A_ NO __

NOTE: PASSENGER SIDE MIRROR NOT REQUIRED TO MEET REQUIREMENTS OF FMVSS 111.

TEST STATUS: PASSED — X FAILED —

RECORDED BY: PABLO VEGA DATE: 05/25/04

APPROVED BY: MATTHEW A. IVORY DATE: 05/25/04
DATA SHEET NO. 7
MIRROR REFLECTIVE SURFACE AREA TEST

<table>
<thead>
<tr>
<th>VEHICLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
</tr>
<tr>
<td>MODEL</td>
</tr>
<tr>
<td>NHTSA NO.</td>
</tr>
<tr>
<td>TEST DATE:</td>
</tr>
</tbody>
</table>

MPVs, TRUCKS & BUSES (OTHER THAN SCHOOL BUSES)

DATA TABLE FOR SURFACE AREA

<table>
<thead>
<tr>
<th>MIRRORS</th>
<th>AREA (cm²)</th>
<th>REQUIREMENT</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Driver's Side</td>
<td>170.6 cm²</td>
<td>126 cm²</td>
<td>323 cm²</td>
</tr>
<tr>
<td>Outside Passenger Side</td>
<td>164.3 cm²</td>
<td>126 cm²</td>
<td>323 cm²</td>
</tr>
</tbody>
</table>

MIRRORS LOCATED SO AS TO PROVIDE DRIVER A VIEW TO THE REAR:

LEFT SIDE | YES _X_ NO __
RIGHT SIDE | YES _X_ NO __

TEST STATUS: | PASSED — | N/A | FAILED — |

REMARKS: NO SURFACE AREA REQUIREMENTS

RECORDED BY: | PABLO VEGA | DATE: | 05/25/04 |
APPROVED BY: | MATTHEW A. IVORY | DATE: | 05/25/04 |
# DATA SHEET NO. 8

## TEST SUMMARY-FMVSS 111-REARVIEW MIRRORS

<table>
<thead>
<tr>
<th>VEHICLE</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td>2004</td>
<td>MAKE</td>
<td>NISSAN</td>
</tr>
<tr>
<td>MODEL</td>
<td>MAXIMA</td>
<td>BODY STYLE</td>
<td>4 DOOR SEDAN</td>
</tr>
<tr>
<td>NHTSA NO.</td>
<td>C45204</td>
<td>VIN</td>
<td>1N4BA41E44C868150</td>
</tr>
<tr>
<td>TEST DATE:</td>
<td>05/25/04</td>
<td>TEMPERATURE:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### PASSENGER VEHICLE TESTING:

<table>
<thead>
<tr>
<th>OUTSIDE DRIVER SIDE MIRROR</th>
<th>PASS</th>
<th>FAIL</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>STABLE SUPPORT</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOES NOT PROTRUDE BEYOND VEHICLE BODY</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOT OBSCURED BY UNWIPED PORTION OF WINDSHIELD</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJUSTABLE BY TILTING</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJUSTABLE FROM DRIVER SEAT</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FREE OF SHARP EDGES</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIELD-OF-VIEW</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REFLECTANCE</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIT MAGNIFICATION</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INSIDE REARVIEW MIRROR</th>
<th>PASS</th>
<th>FAIL</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>STABLE SUPPORT</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJUSTABLE BY TILTING</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIELD-OF-VIEW</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REFLECTANCE</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BREAK AWAY</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIT MAGNIFICATION</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### OUTSIDE PASSENGER MIRROR *

(If required)

<table>
<thead>
<tr>
<th>OUTSIDE PASSENGER MIRROR * (IF REQUIRED)</th>
<th>PASS</th>
<th>FAIL</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>STABLE SUPPORT</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJUSTABLE BY TILTING</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FREE OF SHARP EDGES</td>
<td>⌂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIT OR CONVEX</td>
<td></td>
<td></td>
<td>Convex</td>
</tr>
<tr>
<td>LABELING</td>
<td></td>
<td>⌂</td>
<td></td>
</tr>
<tr>
<td>REFLECTANCE</td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

*NOT REQUIRED
APPENDIX A

PHOTOGRAPHS
MANUFACTURED BY NISSAN MOTOR CO., LTD.

DATE: 10/83

MODEL: 240SX

VIN: 4N3BV09D9P1000096

THIS VEHICLE COMPLIES TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT AT THE DATE OF MANUFACTURE.

SEE OWNER'S MANUAL FOR IMPOTANT SAFETY INSTRUCTIONS.

FOR INSPECTION, MAINTENANCE AND REPAIR INFORMATION, SEE SERVICE HANDBOOK.

CODE 1: 0/1000

2004 NISSAN MAXIMA
NHTSA NO. C45204
FMVSS NO. 111

FIGURE 5: MANUFACTURER'S LABEL
**Figure 6: Tire Placard**

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>Front</th>
<th>Rear</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMENSIONS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>175/65R18</td>
<td>220</td>
<td>220</td>
<td>440</td>
</tr>
</tbody>
</table>

**Recommended Cold Tire Inflation Pressure**

<table>
<thead>
<tr>
<th>TIRE SIZE</th>
<th>FRONT</th>
<th>REAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>175/65R18</td>
<td>220</td>
<td>220</td>
</tr>
</tbody>
</table>

**Vehicle Placard**

<table>
<thead>
<tr>
<th>TIRE SIZE</th>
<th>FRONT</th>
<th>REAR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>175/65R18</td>
<td>220</td>
<td>220</td>
<td>440</td>
</tr>
</tbody>
</table>

**DO NOT USE IN EXCESS OF**

- 60 MPH

**Additional Information**

- For details, refer to the vehicle owner's manual.
- For vehicle identification and emissions data, refer to the vehicle identification label.
APPENDIX B

DATA PLOTS
**Test Program:** 2004 FMVSS 111 Rearview Mirrors  Test No.: 4

**Test Vehicle:** 2004 Nissan Maxima  No.: C45204

**Load Direction:** -45 / +45

**Test Date:** 6/25/04

<table>
<thead>
<tr>
<th>Units</th>
<th>Peak Force</th>
<th>Displacement</th>
<th>Filter (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newtons</td>
<td>102.7</td>
<td>28.9</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units</th>
<th>Max</th>
<th>Time</th>
<th>Displ. Rate (mm/min.)</th>
<th>Filter (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM</td>
<td>32.2</td>
<td>51.7</td>
<td>37.5</td>
<td>1</td>
</tr>
</tbody>
</table>
APPENDIX C

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION
## 2004 FMVSS 111 Rearview Mirrors

### Test Equipment List

5/25/04

#### 2004 Nissan Maxima

<table>
<thead>
<tr>
<th>Description</th>
<th>Manufacturer</th>
<th>Model No.</th>
<th>Serial No.</th>
<th>Limit</th>
<th>Accuracy</th>
<th>Cal. Date</th>
<th>Due Cal.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Pump</td>
<td>Lincoln</td>
<td>T-3825-C</td>
<td>2460962</td>
<td>8 gpm @ 2700 psi</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Computer</td>
<td>Panasonic</td>
<td>CF-71</td>
<td>8IMAA01852</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>TDAS</td>
<td>DTS</td>
<td>TDAS</td>
<td>DM0103</td>
<td>N/A</td>
<td>SAE J211</td>
<td>11/28/03</td>
<td>11/27/04</td>
</tr>
<tr>
<td>Load Cell</td>
<td>Lebow</td>
<td>3167</td>
<td>1573</td>
<td>667 N</td>
<td>± 1.0%</td>
<td>6/20/03</td>
<td>6/19/04</td>
</tr>
<tr>
<td>Displacement Xdc.</td>
<td>Calesco</td>
<td>PTX101-0030</td>
<td>J0654652</td>
<td>76 CM</td>
<td>± 1.0%</td>
<td>7/1/03</td>
<td>6/30/04</td>
</tr>
</tbody>
</table>

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APPENDIX D

EYELIPSE LOCATIONS SUPPLIED BY MANUFACTURER
# FMVSS 111 Eye Point Locations

**Make:** Nissan  
**Model:** Maxima  
**Year:** 2004

Coordinate System:  
- **X** = Longitudinal Dimension  
- **Y** = Lateral Dimension  
- **Z** = Vertical Dimension

Positive Values are as follows:  
- **X** = Forward of Reference Point  
- **Y** = Outboard of Reference Point (to driver’s side)  
- **Z** = Above Reference Point

Provide Reference/Body Fiducial Point that dimensions below are measured from. Point must be easily accessible and usable by test laboratory personnel, i.e. seat track mounting bolt, seat belt anchorage bolt, door latch aB pillar strike. (Provide sketch of reference point if necessary.)

**Reference Point – Front Outer Seat Track Mounting Bolt**

Coordinates: $X = 1074.0$, $Y = 590.0$, $Z = 63.2$

<table>
<thead>
<tr>
<th>COORDINATES</th>
<th>LEFT SIDE MIRROR</th>
<th>INSIDE MIRROR</th>
<th>RIGHT SIDE MIRROR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LEFT (left eye)</td>
<td>RIGHT (right eye)</td>
<td></td>
</tr>
<tr>
<td>$X$</td>
<td>$-425.6$</td>
<td>$-386.5$</td>
<td>$-383.0$</td>
</tr>
<tr>
<td>$Y$</td>
<td>$-150.1$</td>
<td>$-162.0$</td>
<td>$-237.1$</td>
</tr>
<tr>
<td>$Z$</td>
<td>$806.8$</td>
<td>$806.8$</td>
<td>$806.8$</td>
</tr>
</tbody>
</table>

**Mirror Info.**
- **Make:** Iskashik Industries
- **Model:** 96302
- **Part No.:** 9Y0001/2/3/4/5/6/7/8/9/10 96303
- **Oemex:** 96321 CA100 96321 7Y100
- **Iskashik Industries**: 96301 7Y000/2/3/4/5/6/7/8/9/10 96301 7Y100/2/3/4/5/6/7/8/9/10 96301 7Y300/2/3/4/5/6/7/8/9/10

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111-KAR-04-003