REPORT NUMBER: 111SB-MGA-2011-005

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 111SB SCHOOL BUS REARVIEW MIRRORS

2012 IC CORP. CE SCHOOL BUS
NHTSA NO.: CC0900

PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105

TEST DATES: JULY 22 – 28, 2011

FINAL REPORT DATE: AUGUST 10, 2011

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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Prepared by: _____ Date: August 8, 2011
Eric Peschman, Project Engineer

Reviewed by: _____ Date: August 8, 2011
Michael Janovicz, Program Manager

FINAL REPORT ACCEPTED BY:

_____

8/10/11

Date of Acceptance

Technical Report Documentation Page

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16. Abstract Compliance tests were conducted on the subject 2012 IC Corp. CE School Bus, NHTSA No.: CC0900, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-111SB-00 for the determination of FMVSS 111 compliance. Test Failure: None.			
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PURPOSE OF COMPLIANCE TEST

Tests were conducted on a 2012 IC Corp. CE School Bus, NHTSA No.: CC0900, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedure TP-111SB-00 to determine compliance to the requirements of Federal Motor Vehicle Safety Standard (FMVSS) 111SB, “School Bus Rearview Mirrors.”

This program is sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-08-D-00075.

SECTION 2
TEST DATA SUMMARY

Based on the tests performed, the 2012 IC Corp. CE School Bus, NHTSA No.: CC0900, appears to meet all of the requirements of FMVSS 111SB.

SECTION 3

COMPLIANCE TEST DATA

FMVSS 111SB – SCHOOL BUS REARVIEW MIRRORS

TEST SUMMARY DATA SHEET

Test Vehicle: **2012 IC Corp. CE School Bus** NHTSA No.: **CC0900**
Test Lab: **MGA Research Corporation** Test Dates: **07/22/11 – 07/28/11**

SYSTEM A MIRRORS

A. DRIVER SIDE MIRROR NO. 3 – UNIT MAGNIFICATION

	Pass/Fail	Comments
Mounting	**PASS**	--
Field of View	**PASS**	--
Surface Area	**PASS**	--
Reflectance	**PASS**	--
Unit Magnification	**PASS**	--

B. PASSENGER SIDE MIRROR NO. 4 – UNIT MAGNIFICATION

	Pass/Fail	Comments
Mounting	**PASS**	--
Field of View	**PASS**	--
Surface Area	**PASS**	--
Reflectance	**PASS**	--
Unit Magnification	**PASS**	--

C. DRIVER SIDE MIRROR NO. 5 – CONVEX

	Pass/Fail	Comments
Mounting	**PASS**	--
Field of View	**PASS**	--
Reflectance	**PASS**	--

D. PASSENGER SIDE MIRROR NO. 6 – CONVEX

	Pass/Fail	Comments
Mounting	**PASS**	--
Field of View	**PASS**	--
Reflectance	**PASS**	--

SECTION 3

COMPLIANCE TEST DATA

FMVSS 111SB – SCHOOL BUS REARVIEW MIRRORS

TEST SUMMARY DATA SHEET

Test Vehicle: **2012 IC Corp. CE School Bus** NHTSA No.: **CC0900**
Test Lab: **MGA Research Corporation** Test Dates: **07/22/11 – 07/28/11**

SYSTEM B MIRRORS

E. DRIVER SIDE FRONT MIRROR NO. 1 – LF CROSSVIEW / CONVEX

	Pass/Fail	Comments
Mounting	**PASS**	--
Field of View	**PASS**	--
Overlap with System A	**PASS**	--
Distance to Eye Point	**PASS**	--
No Surface Discontinuities	**PASS**	--
Surface Area	**PASS**	--
If Convex – Radius of Curvature	**PASS**	--
Radius of Curvature Label	**PASS**	--
Arc Separation	**PASS**	--
Reflectance	**PASS**	--

F. PASSENGER SIDE FRONT MIRROR NO. 2 – RF CROSSVIEW / CONVEX

	Pass/Fail	Comments
Mounting	**PASS**	--
Field of View	**PASS**	--
Overlap with System A	**PASS**	--
Distance to Eye Point	**PASS**	--
No Surface Discontinuities	**PASS**	--
Surface Area	**PASS**	--
If Convex – Radius of Curvature	**PASS**	--
Radius of Curvature Label	**PASS**	--
Arc Separation	**PASS**	--
Reflectance	**PASS**	--

FMVSS 111SB – DATA SHEET 1

SCHOOL BUS INSPECTION AND IDENTIFICATION

Test Vehicle: **2012 IC Corp. CE School Bus** NHTSA No.: **CC0900**
Test Lab: **MGA Research Corporation** Test Dates: **07/22/11 – 07/28/11**

GENERAL VEHICLE IDENTIFICATION

School Bus Manufacturer	IC Corp.	Date of Mfg.	09/2010
Chassis Manufacturer	N/A	Date of Mfg.	N/A
GVWR (kg)	13,517	GAWR Front (kg)	4,536
VIN	4DRBUSKP6CB392585	GAWR Rear (kg)	9,525

DESCRIPTION OF MIRRORS

Mirror No.	Type			Description	Manufacturer
	Unit Mag.	Convex	Cross View		
1		X	X	Driver Side	Rosco Mirror
2		X	X	Passenger Side	
3	X			Driver Side	
4	X			Passenger Side	
5		X		Driver Side	
6		X		Passenger Side	

Recorded By: _____

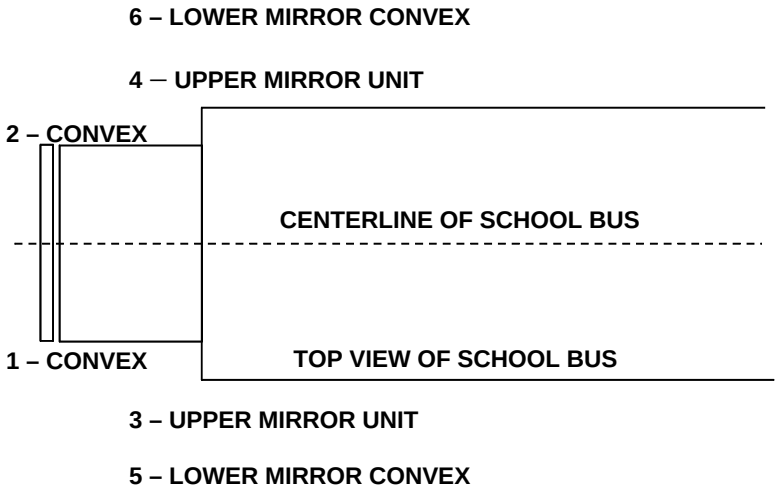
Approved By: _____ Date: July 22, 2011

FMVSS 111SB – DATA SHEET 2

MIRROR LOCATION AND FIELD OF VIEW

Test Vehicle:	**2012 IC Corp. CE School Bus**	NHTSA No.:	**CC0900**
Test Lab:	**MGA Research Corporation**	Test Dates:	**07/22/11 – 07/28/11**

MIRROR DIAGRAM



Mirror No.	Type	Mirror System	Cylinders Viewed (Entire Top Surface)
1	LF CROSSVIEW / CONVEX	B	B, C, E, F, G, H, I, J, L, M
2	RF CROSSVIEW / CONVEX	B	A, B, C, D, E, F, G, H, I, K, N, O, P
3	UNIT MAGNIFICATION	A	61 Meter Indicator
4	UNIT MAGNIFICATION	A	61 Meter Indicator
5	CONVEX	A	L, M
6	CONVEX	A	N, O, P

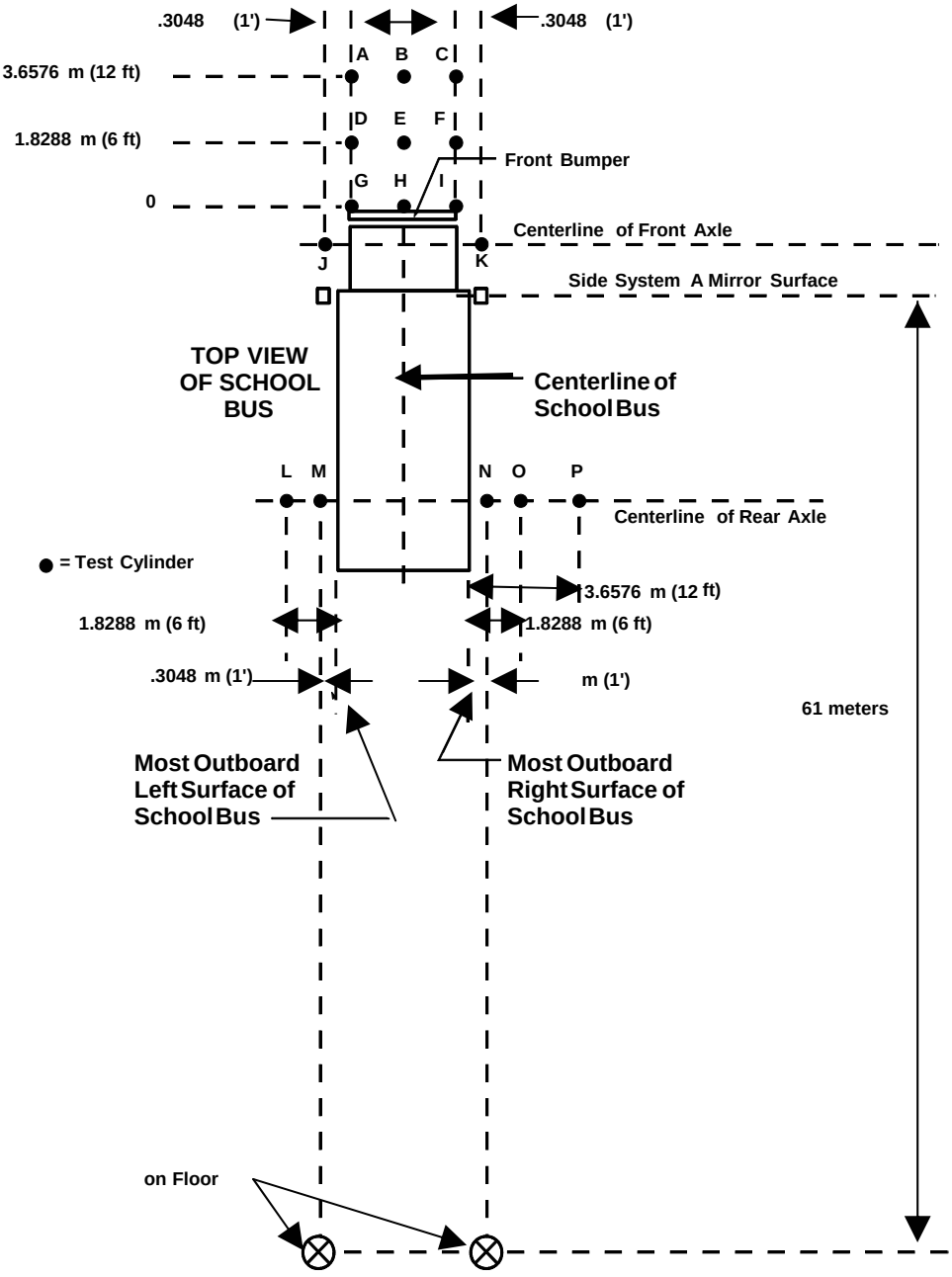
SEE FIGURE ON NEXT PAGE

FMVSS 111SB – DATA SHEET 2

MIRROR LOCATION AND FIELD OF VIEW

Test Vehicle:	**2012 IC Corp. CE School Bus**	NHTSA No.:	**CC0900**
Test Lab:	**MGA Research Corporation**	Test Dates:	**07/22/11 – 07/28/11**

MIRROR LOCATIONS OF TEST CYLINDERS AND INDICATOR



NOTES:

1. The cylinders shall be a color which provides a high contrast with the surface on which the bus is parked (S13.1).
2. The cylinders are 0.3048 m high and 0.3048 m in diameter, except for cylinder P which is 0.9144 m high and 0.3048 m in diameter.

FMVSS 111SB – DATA SHEET 2

MIRROR LOCATION AND FIELD OF VIEW

Test Vehicle:	**2012 IC Corp. CE School Bus**	NHTSA No.:	**CC0900**
Test Lab:	**MGA Research Corporation**	Test Dates:	**07/22/11 – 07/28/11**

SYSTEM A AND DIRECT VISION

System A Mirrors	PASS/FAIL
Entire top surface of cylinder N and the indicator 61 meters (200 feet) rearward of the mirror surface can be viewed in the photograph:	**PASS**
Entire top surface of cylinder M and indicator 61 meters (200 feet) rearward of the mirror surface can be viewed in the photograph:	**PASS**
Which test cylinders, A through P, can not be photographed directly from the driver's eye location within the semi-circle viewing area using no mirror system?	All Cannot Be Seen Without Mirrors.

Recorded By: _____

Approved By: _____ Date: July 22, 2011

FMVSS 111SB – DATA SHEET 3

ARCS AND DISTANCE OF SYSTEM B

Test Vehicle: **2012 IC Corp. CE School Bus** NHTSA No.: **CC0900**
Test Lab: **MGA Research Corporation** Test Dates: **07/22/11 – 07/28/11**

SYSTEM B ARC'S AND DISTANCE

Mirror No. (from data sheet 2)	Mirror Location	Distance from the Driver's Eye Point to the Center of the Mirror (cm)	3 Minutes of Arc (mm)	9 Minutes of Arc (mm)
No. 1	LF Crossview / Convex	260.9	2.28	--
No. 2	RF Crossview / Convex	303.0	2.65	7.93

Distance determined in column 3 multiplied by 0.000873 yield 3 minutes of arc, for column 4, for that mirror as viewed from the driver's eye point; the distances determined in column 3 multiplied by 0.002618 yield 9 minutes of arc, for column 5, for that mirror as viewed from the driver's eye point. The minimum distance for any system B mirror between the driver's eye point and the center of the mirror is more than 95 centimeters (37.5 inches):

	Distance	PASS/FAIL
Distance between center of System B mirror No. 1 and driver's eye point > 95 cm Yes = PASS; No = FAIL	260.9	**PASS**
Distance between center of System B mirror No. 2 and driver's eye point > 95 cm Yes = PASS; No = FAIL	303.0	**PASS**

Recorded By: _____

Approved By: _____ Date: July 25, 2011

FMVSS 111SB – DATA SHEET 4

FIELD OF VIEW TEST FOR SYSTEM B

Test Vehicle: **2012 IC Corp. CE School Bus** NHTSA No.: **CC0900**
Test Lab: **MGA Research Corporation** Test Dates: **07/22/11 – 07/28/11**

		PASS/FAIL
All test cylinders with entire top surface not directly visible from the driver's semi-circle eye location are able to be viewed with System B mirrors from the driver's semi-circle location:		**PASS**
All test cylinders with entire top surface not directly visible from the driver's semi-circle eye location but the image can be viewed with System B mirrors. The image is separated for the edge of the effective mirror surface of the mirror providing that image by a distance of not less than 3 minutes of arc:		**PASS**
If the entire top surface of test cylinder P is not directly visible from the driver's semi-circle eye location, the image can be viewed with System B mirrors from the driver's semi-circle eye location, where the angular size of the shortest dimension of that cylinder's image is not less than 3 minutes of arc, and the angular size of the longest dimension of that cylinder's image is not less than 9 minutes of arc:		**PASS**
Shortest arc length dimension	1.62 mm	
Longest arc length dimension	4.84 mm	
For each of the test cylinders whose entire top surface is not directly visible from the driver's eye location, System B provides a view of the ground that overlaps with the view of the ground provided by System A.		**PASS**

Recorded By: _____

Approved By: _____ Date: July 25, 2011

FMVSS 111SB – DATA SHEET 5

MOUNTING ADEQUACY TEST – ALL MIRRORS

Test Vehicle: **2012 IC Corp. CE School Bus** NHTSA No.: **CC0900**
Test Lab: **MGA Research Corporation** Test Dates: **07/22/11 – 07/28/11**

MOUNTING SUPPORT OF ALL MIRRORS

Mirror No. (from data sheet 2)	Type	System	Stable Support YES/NO
1	LF Crossview / Convex	B	Yes
2	RF Crossview / Convex	B	Yes
3	Unit Magnification	A	Yes
4	Unit Magnification	A	Yes
5	Convex	A	Yes
6	Convex	A	Yes

	PASS/FAIL
Outside mirrors free of sharp points or edges that could contribute to pedestrian injury.	**PASS**
System B mirrors have no discontinuities in the slope of the surface of the mirror.	**PASS**

Recorded By: _____

Approved By: _____ Date: July 25, 2011

FMVSS 111SB – DATA SHEET 6

REFLECTANCE TEST – ALL MIRRORS

Test Vehicle: **2012 IC Corp. CE School Bus** NHTSA No.: **CC0900**
Test Lab: **MGA Research Corporation** Test Dates: **07/22/11 – 07/28/11**

Mirror No.	Type	Light meter reading from calibration (FC)	Light meter reading from light reflected by mirror (FC)	PASS/FAIL	Observations
1	LF Crossview / Convex	610	470	**PASS**	None
2	RF Crossview / Convex	620	494	**PASS**	None
3	Unit Magnification	608	350	**PASS**	None
4	Unit Magnification	603	343	**PASS**	None
5	Convex	603	453	**PASS**	None
6	Convex	594	442	**PASS**	None

Note: Reflectance % = [Reflectance Reading / Calibration reading] x 100

Minimum Requirement = 35 percent

Mirror No.	Type	Reflectance	Requirement
1	LF Crossview / Convex	77%	>35%
2	RF Crossview / Convex	80%	>35%
3	Unit Magnification	58%	>35%
4	Unit Magnification	57%	>35%
5	Convex	75%	>35%
6	Convex	74%	>35%

Recorded By: _____

Approved By: _____ Date: July 27, 2011

FMVSS 111SB – DATA SHEET 7

UNIT MAGNIFICATION/CONVEX MIRROR TEST – ALL MIRRORS

Test Vehicle:	**2012 IC Corp. CE School Bus**	NHTSA No.:	**CC0900**
Test Lab:	**MGA Research Corporation**	Test Dates:	**07/22/11 – 07/28/11**

CONVERSION DATA TABLE FROM SPHEROMETER DIAL READING TO RADIUS OF CURVATURE

MIRROR NO. 1 (LF CROSSVIEW / CONVEX)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.05050	142.1	42.32	22.9%
2	0.03650	196.2	-11.76	-6.4%
3	0.02470	289.5	-105.11	-57.0%
4	0.05200	138.0	46.38	25.1%
5	0.05130	139.9	44.51	24.1%
6	0.03575	200.3	-15.86	-8.6%
7	0.05085	141.1	43.29	23.5%
8	0.02810	254.6	-70.16	-38.0%
9	0.05090	141.0	43.42	23.5%
10	0.03555	201.4	-16.98	-9.2%
Avg. Radius of Curvature – The summation of column 3 divided by 10: 184.4 mm			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: -57.0%	

Derived values are rounded for reporting purposes.

MIRROR NO. 2 (RF CROSSVIEW / CONVEX)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.04970	144.4	40.43	21.9%
2	0.03605	198.6	-13.82	-7.5%
3	0.02550	280.5	-95.67	-51.8%
4	0.05140	139.6	45.16	24.4%
5	0.05140	139.6	45.16	24.4%
6	0.03560	201.1	-16.32	-8.8%
7	0.05210	137.8	47.02	25.4%
8	0.02720	263.0	-78.18	-42.3%
9	0.05075	141.4	43.39	23.5%
10	0.03545	202.0	-17.17	-9.3%
Avg. Radius of Curvature – The summation of column 3 divided by 10: 184.8 mm			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: -51.8%	

Derived values are rounded for reporting purposes.

FMVSS 111SB – DATA SHEET 7

UNIT MAGNIFICATION/CONVEX MIRROR TEST – ALL MIRRORS

Test Vehicle:	**2012 IC Corp. CE School Bus**	NHTSA No.:	**CC0900**
Test Lab:	**MGA Research Corporation**	Test Dates:	**07/22/11 – 07/28/11**

CONVERSION DATA TABLE FROM SPHEROMETER DIAL READING TO RADIUS OF CURVATURE

MIRROR NO. 3 (UNIT MAGNIFICATION)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.00000	N/A	N/A	N/A
2	0.00000	N/A	N/A	N/A
3	0.00000	N/A	N/A	N/A
4	0.00000	N/A	N/A	N/A
5	0.00000	N/A	N/A	N/A
6	0.00000	N/A	N/A	N/A
7	0.00000	N/A	N/A	N/A
8	0.00000	N/A	N/A	N/A
9	0.00000	N/A	N/A	N/A
10	0.00000	N/A	N/A	N/A
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: N/A			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: N/A	

MIRROR NO. 4 (UNIT MAGNIFICATION)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.00000	N/A	N/A	N/A
2	0.00000	N/A	N/A	N/A
3	0.00000	N/A	N/A	N/A
4	0.00000	N/A	N/A	N/A
5	0.00000	N/A	N/A	N/A
6	0.00000	N/A	N/A	N/A
7	0.00000	N/A	N/A	N/A
8	0.00000	N/A	N/A	N/A
9	0.00000	N/A	N/A	N/A
10	0.00000	N/A	N/A	N/A
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: N/A			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: N/A	

FMVSS 111SB – DATA SHEET 7

UNIT MAGNIFICATION/CONVEX MIRROR TEST – ALL MIRRORS

Test Vehicle:	**2012 IC Corp. CE School Bus**	NHTSA No.:	**CC0900**
Test Lab:	**MGA Research Corporation**	Test Dates:	**07/22/11 – 07/28/11**

CONVERSION DATA TABLE FROM SPHEROMETER DIAL READING TO RADIUS OF CURVATURE

MIRROR NO. 5 (CONVEX)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.01220	585.7	-16.53	-2.9%
2	0.01270	562.7	6.52	1.1%
3	0.01200	595.5	-26.28	-4.6%
4	0.01380	517.8	51.34	9.0%
5	0.01225	583.3	-14.14	-2.5%
6	0.01225	583.3	-14.14	-2.5%
7	0.01380	517.8	51.34	9.0%
8	0.01210	590.6	-21.37	-3.8%
9	0.01220	585.7	-16.53	-2.9%
10	0.01255	569.4	-0.20	0.0%
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: 569.2 mm			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: 9.0%	

Derived values are rounded for reporting purposes.

MIRROR NO. 6 (CONVEX)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.01215	588.1	-14.89	-2.6%
2	0.01275	560.5	12.77	2.2%
3	0.01220	585.7	-12.48	-2.2%
4	0.01325	539.3	33.91	5.9%
5	0.01240	576.3	-3.04	-0.5%
6	0.01225	583.3	-10.09	-1.8%
7	0.01320	541.4	31.87	5.6%
8	0.01190	600.5	-27.24	-4.8%
9	0.01225	583.3	-10.09	-1.8%
10	0.01245	574.0	-0.72	-0.1%
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: 573.2 mm			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: 5.9%	

Derived values are rounded for reporting purposes.

FMVSS 111SB – DATA SHEET 7

UNIT MAGNIFICATION/CONVEX MIRROR TEST – ALL MIRRORS

Test Vehicle:	**2012 IC Corp. CE School Bus**	NHTSA No.:	**CC0900**
Test Lab:	**MGA Research Corporation**	Test Dates:	**07/22/11 – 07/28/11**

UNIT MAGNIFICATION IN SYSTEM A

	PASS/FAIL
At least one System A Mirror on the left and right sides of the bus is unit magnification - (0 Radius of Curvature)	**PASS**

AVERAGE RADIUS OF CURVATURE OF CONVEX MIRRORS USED IN SYSTEM B

Mirror No.	Radius of Curvature	If needed, wording printed properly* PASS/FAIL
1	183.4 mm	**PASS**
2	184.8 mm	**PASS**

* If any of the Convex Mirrors in System B have an average radius of curvature less than 889 mm, then the following words must be printed on a label in type face and colors that are clear and conspicuous to the driver:

"USE CROSS VIEW MIRRORS TO VIEW PEDESTRIANS WHILE BUS IS STOPPED. DO NOT USE THESE MIRRORS TO VIEW TRAFFIC WHILE BUS IS MOVING, IMAGES IN SUCH MIRRORS DO NOT ACCURATELY SHOW ANOTHER VEHICLE'S LOCATION."

Recorded By: _____

Approved By: _____ Date: July 26, 2011

FMVSS 111SB – DATA SHEET 8

MIRROR REFLECTIVE SURFACE AREA TEST – SYSTEMS A AND B

Test Vehicle: **2012 IC Corp. CE School Bus** NHTSA No.: **CC0900**
Test Lab: **MGA Research Corporation** Test Dates: **07/22/11 – 07/28/11**

DATA TABLE FOR SURFACE AREA

System A Mirrors Mirror No.	Area	Requirement Min. 323 cm²	PASS/FAIL
3	487.4 cm^2	323 cm^2	**PASS**
4	478.2 cm^2	323 cm^2	**PASS**
System B Mirrors Mirror No.	Area	Requirement Min. 258 cm²	PASS/FAIL
1	568.2 cm^2	258 cm^2	**PASS**
2	560.3 cm^2	258 cm^2	**PASS**

Recorded By: _____

Approved By: _____ Date: July 28, 2011

SECTION 4

INSTRUMENTATION AND EQUIPMENT LIST

Test Vehicle: **2012 IC Corp. CE School Bus** NHTSA No.: **CC0900**
Test Lab: **MGA Research Corporation** Test Dates: **07/22/11 – 07/28/11**

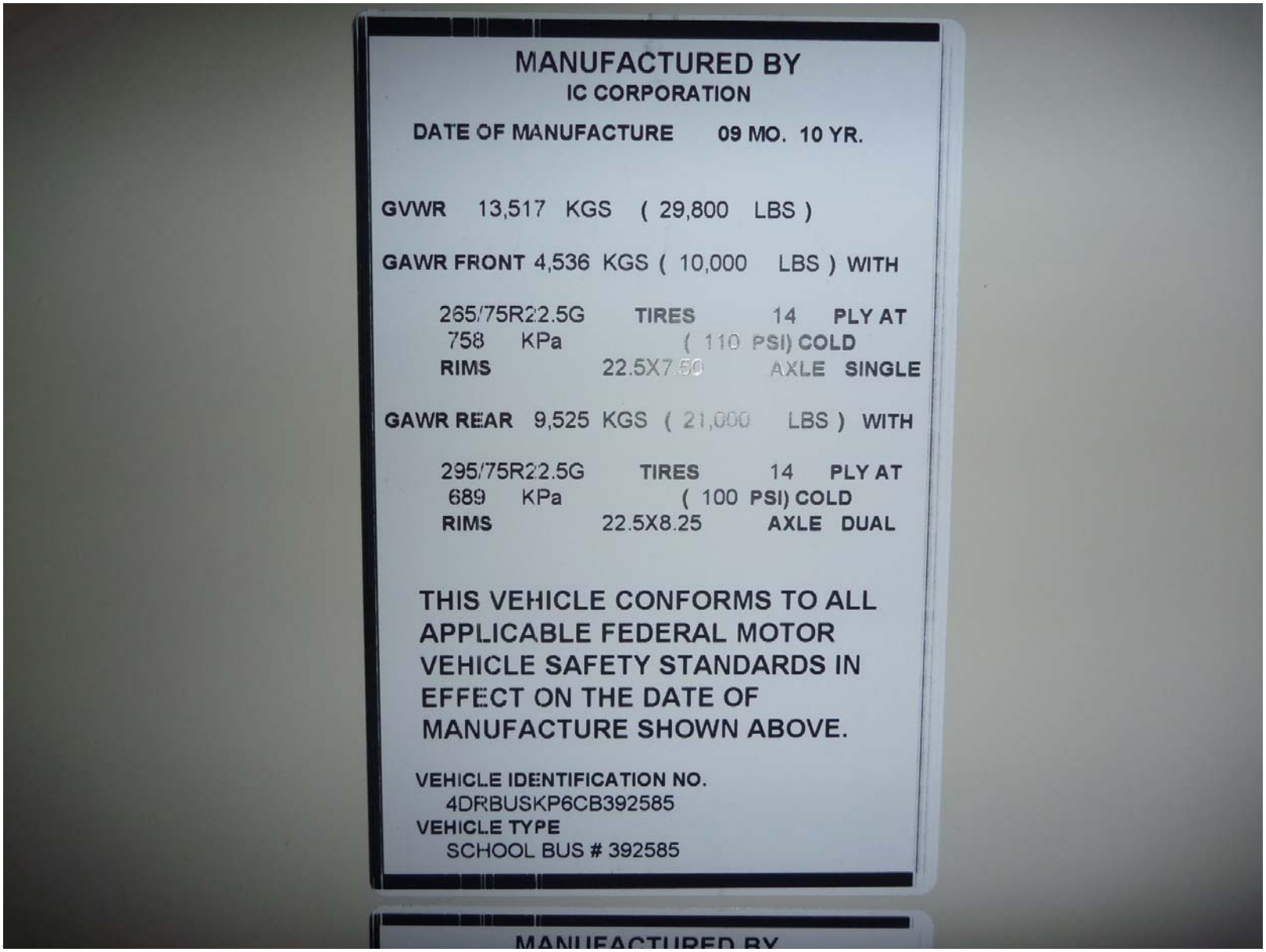
	Digital Caliper	Light Meter	Tape Measure	Spherometer
Make	Starrett	AEMC	Stanley	MGA
Model	F2730-0	CA813	Powerlock 3M	001
Serial No.	021484579	04L1017Y	588	001
Range	0-50.8 mm	2000fc, 2000lux	0 to 8 m	2.25×10^{13} $(cm * Hz^{1/2}) \div W$
Accuracy	.001 mm	0.0 fc or 0.01 lux	1 mm	1.1×10^{-13} $W/H^{1/2}$
Cal. Date	01/31/2011	08/16/2010	03/24/2011	01/31/2011
Cal. Due Date	07/31/2011	08/16/2011	09/24/2011	07/31/2011

SECTION 5
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Three-Quarter Left Front View of School Bus

Three-Quarter Left Rear View of School Bus



Vehicle Certification Label

Driver's Side Rearview Mirror and Mounting

Driver's Side Left Front Convex Crossview Mirror and Mounting

Passenger's Side Rearview Mirror and Mounting

Passenger's Side Right Front Convex Crossview Mirror and Mounting

Field of View Instrument Setup

Field of View Instrument Setup (Side View)

Mirror No. 1 System B Field of View

Mirror No. 2 System B Field of View

Mirror No. 3 and No. 5 System A Field of View

Mirror No. 4 and No. 6 System A Field of View

View of Cylinder Setup from Front

Test Vehicle: **2012 IC Corp. CE School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CC0900**
Test Dates: **07/22/11 – 07/28/11**

Three-Quarter Right Front View of Cylinder Setup

Front View Looking Thru the Windshield View of Cylinder Setup

Reflectance Test Set-up

Label for Cross View Mirror Warning