REPORT NUMBER: 217-MGA-2011-005

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 217 SCHOOL BUS EMERGENCY EXITS AND WINDOW RETENTION AND RELEASE

2012 IC CORP CE SCHOOL BUS NHTSA NO.: CC0900

PREPARED BY:
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TEST DATE: OCTOBER 28, 2011

FINAL REPORT DATE: DECEMBER 27, 2011

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
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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-217-06 for the determination of FMVSS 217 compliance.

Data Sheet 5 omitted as test was not performed.

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SECTION 1 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 Procedures TP-217-06 to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 217, "School Bus Emergency Exits and Window Retention and Release".

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, appeared to meet the requirements of FMVSS 217. See Data Sheet 1 for Test Summary.

SECTION 3 COMPLIANCE TEST DATA

The following data sheets document the results of testing on the 2012 IC Corp CE School Bus, NHTSA No.: CC0900.

DATA SHEET 1 TEST SUMMARY

GENERAL VEHICLE IDENTIFICATION

Model Year / Mfr. / Make / Model	2012 / IC Corp / CE		
NHTSA No.	CC0900		
GVWR	13,517 kg / 29,800 lb		
Build Date for Bus Chassis	09/10		
VIN	4DRBUSKP6CB392585		
Seating Capacity	1 Driver, 67 Passengers		
Type of Bus	School Bus		
Tire Pressure from tire placard (at capacity)	Front: 758 kPa Rear: 689 kPa		
Odometer Reading	2,336 miles		

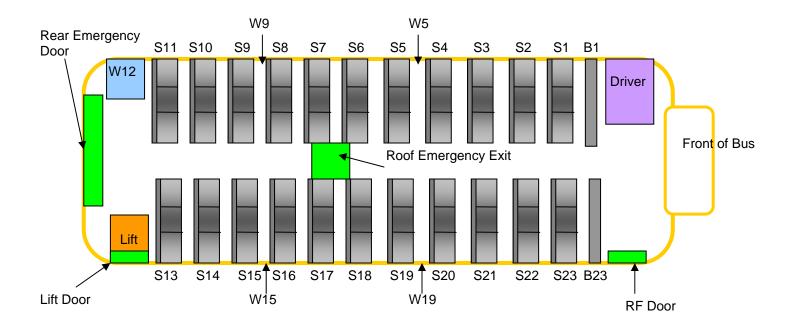
	Pass / Fail
S5.1 WINDOW RETENTION	PASS
S5.2 PROVISION OF EMERGENCY EXITS	PASS
Meets minimum exit provisions	PASS
Meets all other exit requirements	PASS
Meets requirements for additional exits	PASS
S5.2.3.1.A EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS	PASS
S5.3 EMERGENCY EXIT RELEASE	PASS
Forces to unlatch the emergency exits	PASS
Forces to open the emergency exits	PASS
S5.4 EMERGENCY EXIT OPENING	PASS
\$5.5 EMERGENCY EXIT LABELING AND IDENTIFICATION	PASS
S5.5 TAPE REFLECTIVITY (49CFR 571.131)	Not Tested

Comments: None

Approved By: Hillal and

DATA SHEET 2 PROVISION OF EMERGENCY EXITS

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11



		Height (mm)	Width (mm)
1	Rear Emergency Door	1485	910
2	Roof Emergency Exit	570	565
3	Emergency Exit W5	660	585
4	Emergency Exit W9	660	585
5	Emergency Exit W19	660	585
6	Emergency Exit W15	660	585

Seating Capacity: 68 (Including Driver & Passengers)

Requirements	Pass / Fail
Bus meets minimum emergency exit provision, based upon Table 2. Yes – Pass; No – Fail	PASS

DATA SHEET 2 (CONTINUED) PROVISION OF EMERGENCY EXITS

	Requirements	Pass / Fail
1	Rear Emergency Door – opens outward and is hinged on the right side (either side, if the bus has a GVWR of 10,000 pounds or less). Yes – Pass; No – Fail	PASS
2	Side Emergency Door – hinged on its forward side. No more than one side emergency exit door is located, in whole or in part, within the same post and roof bow panel space.	N/A
3	Rear Push Out Window – provides a minimum opening clearance 41 cm high and 122 cm wide (16" x 48").	N/A
4	Roof Exit – is hinged on its forward side, and operable from both the inside and outside the vehicle.	PASS
5	There is an even number of side emergency exit windows on each side of bus. Yes – Pass; No – Fail	PASS
6	The bus is not equipped with both sliding and push-out windows, (except for buses equipped with rear push out emergency exit windows).	PASS
7	A right side emergency exit door, if any, is located as near as practicable to the midpoint of the passenger compartment.	N/A

Comments: None

Recorded Bv:

Approved By: Date: 10/28/11

DATA SHEET 3 EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

	Requirements	Pass / Fail
1	The engine starting system does NOT operate if any Emergency Exit is LOCKED. Yes – Pass; No – Fail	N/A
2	All Emergency Door and Roof Exits can be released by one person (from inside and outside of bus). Yes – Pass; No – Fail	PASS
3	When the Release Mechanism is NOT in the closed position and the vehicle ignition is in the "ON" position, there is a continuous warning sound audible at the Driver's DSP and in the vicinity of the Emergency Door(s) having the unclosed mechanism. Yes – Pass; No – Fail	PASS
4	Emergency exit release mechanism does not use remote controls or central power systems. Yes – Pass; No – Fail	PASS

Comments: None

Recorded By:

Approved By:

DATA SHEET 4A EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: NHTSA No.: CC0900
Test Lab: Test Date: 10/28/11

EMERGENCY EXIT LABELING - INTERIOR

Exit Location	Rear Emergency Door	Roof Emergency Exit	Emergency Exit W5	Emergency Exit W9	Emergency Exit W19	Emergency Exit W15
Exit Description	Door	Roof Hatch	Window	Window	Window	Window
Letter Height (cm)	5.0	5.1	5.0	5.0	5.0	5.0
Background Color	White	White	White	White	White	White
Location Inside	Above Door	On Hatch	Above Window	Above Window	Above Window	Above Window
Pass / Fail	PASS	PASS	PASS	PASS	PASS	PASS

OPERATING INSTRUCTIONS – INTERIOR

Exit Location	Rear Emergency Door	Roof Emergency Exit	Emergency Exit W5	Emergency Exit W9	Emergency Exit W19	Emergency Exit W15
Instructions	To Open Lift Up Red Bar Push Out	Turn Then Push Knob To Open	Pull Handle And Push Out To Open			
Letter Height (cm)	1.7	1.2	1.0	1.0	1.0	1.0
Letter Color	Black	Red	Black	Black	Black	Black
Background Color	White	White	Clear	Clear	Clear	Clear
Distance From Release (cm)	7.5	6.0	1.5	1.5	1.5	1.5
Reflective Tape Color	N/A	N/A	N/A	N/A	N/A	N/A
Reflective Tape Width (cm)	N/A	N/A	N/A	N/A	N/A	N/A
Pass / Fail	PASS	PASS	PASS	PASS	PASS	PASS

Comments: None

Recorded By:

Approved By:

DATA SHEET 4B EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

EMERGENCY EXIT LABELING - EXTERIOR

Exit Location	Rear Emergency Door	Roof Emergency Exit	Emergency Exit W5	Emergency Exit W9	Emergency Exit W19	Emergency Exit W15
Exit Description	Door	Roof Hatch	Window	Window	Window	Window
Letter Height (cm)	5.0	5.1	5.1	5.1	5.1	5.1
Background Color	Yellow	White	Yellow	Yellow	Yellow	Yellow
Location Outside	Above Door	On Hatch	Above Window	Above Window	Above Window	Above Window
Pass / Fail	PASS	PASS	PASS	PASS	PASS	PASS

OPERATING INSTRUCTIONS - EXTERIOR

Exit Location	Rear Emergency Door	Roof Emergency Exit	Emergency Exit W5	Emergency Exit W9	Emergency Exit W19	Emergency Exit W15
Instructions	None	Turn Then Pull Knob To Open	None	None	None	None
Letter Height (cm)	N/A	1.1	N/A	N/A	N/A	N/A
Letter Color	N/A	Black	N/A	N/A	N/A	N/A
Background Color	N/A	White	N/A	N/A	N/A	N/A
Distance From Release (cm)	N/A	15	N/A	N/A	N/A	N/A
Reflective Tape Color	Yellow	Silver	Yellow	Yellow	Yellow	Yellow
Reflective Tape Width (cm)	2.5	2.5	2.5	2.5	2.5	2.5
Pass / Fail	PASS	PASS	PASS	PASS	PASS	PASS

Comments: None

Recorded By:_

Approved By:

DATA SHEET 4 EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: NHTSA No.: CC0900
Test Lab: Test Date: 10/28/11

	Requirements	Pass / Fail
1	Each required Emergency Exit is labeled with the words "Emergency Exit" or "Emergency Door" as appropriate in letters at least 5 cm high (2") of a color that contrasts with its background. Yes – Pass; No – Fail	PASS
2	Emergency Doors – The designation "Emergency Exit" or "Emergency Door" is located at the top of, or directly above the exit door on both inside and outside surfaces of the bus. Yes – Pass; No – Fail	PASS
3	Roof Exits – The designation for roof exits is located on an inside surface of the exit, or within 30 cm (11.8") of the roof exit opening.	PASS
4	Emergency Window Exits – The designation is located at the top of, or directly above, or at the bottom of the emergency window exit on both the inside and outside surfaces of the bus.	PASS
5	Exit Operating Instructions indicate all motions required to unlatch and open the exit, in letters at least 1 cm (.39") high and of a color that contrast with its background and shall be located within 15 cm (5.9") of the release mechanism on the inside surface of the bus. Yes – Pass; No – Fail	PASS
6	Each required Emergency Exit opening is outlined around its perimeter with a 2.5 cm (1") wide retroreflective tape of red, white, or yellow color. Yes – Pass; No – Fail	PASS

Comments: Roof tape is silver, is acceptable and considered a "Pass" per COTR.

Recorded By:

Approved By:

DATA SHEET 6A FORCE TESTS TO UNLATCH THE EMERGENCY EXITS - INTERIOR

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)		Actual Force Measured (N)						Actual Motion(s) to Release Exit	Pass / Fail
Door				1.	37.8	Lift Dod Dor	Lift Red Bar					
Rear	Door	∐iah	178	2.	35.6	Lift Red Bar Then Push	And Push	PASS				
Emergency Door	D001	High	178	3.	35.6	Out	Out	PASS				
Door				Average	36.3	Out	Out					
Doof				1.	48.9		Turn Knob					
Roof	Roof Hatch	∐iah	178	2.	44.5	Turn Then	Turn Knob Then Push Knob	PASS				
Emergency Exit	Rooi Hatch	High		3.	40.0	Push Knob		PASS				
LXII				Average	44.5		KIIOD					
		Window High	178	1.	35.6	Pull Handle And Push Out	Pull Handle					
Emergency	Window			2.	35.6		And Push Out	PASS				
Exit W5	vviridow			3.	35.6			PASS				
				Average	35.6							
				1.	35.6	Pull Handle And	Pull Handle					
Emergency	Window	High	178	2.	40.0		And	PASS				
Exit W9	VVIIIGOV	riigii	170	3.	37.8	Push Out	Push Out	1 733				
				Average	37.8	1 don Out	1 don Out					
				1.	40.0	Pull Handle	Pull Handle					
Emergency	Window	High	178	2.	40.0	And	And	PASS				
Exit W19	VVIIIGOV	riigii	170	3.	40.0	Push Out	Push Out	1 700				
				Average	40.0							
				1.	40.0	Pull Handle	Pull Handle					
Emergency	Window	dow High	178	2.	37.8	And Push Out	And Push Out	PASS				
Exit W15	VVIIIGOVV			3.	40.0			. 700				
				Average	39.3	. don out	. 4611 - 41					

Comments: None

Recorded By:

Annroved By

DATA SHEET 6B FORCE TESTS TO UNLATCH THE EMERGENCY EXITS – EXTERIOR

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual I Measure		Motion(s) Required to Release Exit	Actual Motion(s) to Release Exit	Pass / Fail
Door				1.	53.4			
Rear	Door	High	178	2.	62.3	Rotate Handle	Rotate Handle	PASS
Emergency Door	Door			3.	62.3			FA33
0001				Average	59.3			
Doof				1.	71.2			
Roof	Roof Hatch	Lliah	170	2.	71.2	Turn Knob	Turn Knob	PASS
Emergency Exit	Rooi Hatch	High	178	3.	68.9	Tulli Knob Tull	Turri Kriob	PASS
LAIL				Average	70.4			

Comments: None

Recorded By:

Approved By:

DATA SHEET 7A FORCE TESTS TO OPEN THE EMERGENCY EXITS – INTERIOR

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual F Measure		Motion(s) Required to Release Exit	Actual Motion(s) to Release Exit	Passage of Ellipsoid or Parallelepiped	Pass / Fail
Rear Emergency Door	Door	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Push Out	Push Out	114x61x30 Parallelepiped	PASS
Roof Emergency Exit	Roof Hatch	High	178	1. 2. 3. Average	80.1 89.0 86.7 85.3	Turn Then Push Knob	Turn Knob Then Push Knob	Ellipsoid	PASS
Emergency Exit W5	Window	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Pull Handle Then Push Out	Pull Handle Then Push Out	Ellipsoid	PASS
Emergency Exit W9	Window	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Pull Handle Then Push Out	Pull Handle Then Push Out	Ellipsoid	PASS
Emergency Exit W19	Window	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Pull Handle Then Push Out	Pull Handle Then Push Out	Ellipsoid	PASS
Emergency Exit W15	Window	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Pull Handle Then Push Out	Pull Handle Then Push Out	Ellipsoid	PASS

Describe in the comments section if more than one force and motion are required to unlatch the exit.

Comments: None

Recorded Bv:

Approved By:

DATA SHEET 7B FORCE TESTS TO OPEN THE EMERGENCY EXITS – EXTERIOR

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual F Measure		Motion(s) Required to Release Exit	Actual Motion(s) to Release Exit	Passage of Ellipsoid or Parallelepiped	Pass / Fail
Rear				1.	4.4				
Emergency	Door	Door High	High 178	2.	4.4	Pull Handle	Pull Handle	114x61x30 Parallelepiped	PASS
Door	D001			3.	4.4				. 7.00
Bool				Average	4.4				
D (1.	97.9				
Roof	Poof Hatch	Roof Hatch High	170	2.	102.3	Pull Knob	Pull Knob	Ellipsoid	PASS
Emergency Exit	Rooi Hatch		178	3.	102.3	Pull Kilob			PASS
LAIL				Average	100.8				

Describe in the comments section if more than one force and motion are required to unlatch the exit.

Comments: None

Recorded Bv:

Approved By:

DATA SHEET 8 EMERGENCY EXIT EXTENSION

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

	Requirements	Pass / Fail
1	Exit(s) can be extended by a single person. Yes – Pass; No – Fail	PASS
2	Each emergency exit door is equipped with a positive door opening device that meets the requirements (outlined in Section S5.4.1 (3) of FMVSS 217).	PASS
3	There is a 30 cm (11.81") wide clear aisle space for each side emergency door exit.	N/A
4	For flip-up seat adjacent to the side emergency door exit it automatically assumes and retain a vertical position when not in use, so that no portion of the seat bottom is within the 30 cm (11.81") aisle clearance space	N/A
5	There is no seat or barrier which extend past the side door opening	PASS
6	There is no obstruction of door latch mechanism for the rear emergency door. Yes – Pass; No – Fail	PASS

Comments: None

Recorded By:

Approved By:

DATA SHEET 9 WINDOW RETENTION TEST

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

1	Test Window Identification:		Emergency Exit W5 Lower Pane (Driver Side)			
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Single G	laze, Vertical Slidii	ng		
3	Provide the horizontal and vertical glazing dimensions for each panel.		zontal: 305 mm rtical: 541 mm			
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the force per the PASS / FAIL criteria: Yes – Pass; No – Fail		ed at 44 mm Displa sec – 2829 N PASS	acement		
	Did the window pass the force tests to unlatch	Unlatch Force Measured (N)	Open Force Measured (N)	Pass / Fail		
5	and open the exit after the completion of the	1. 26.7	1. 4.4	PASS		
	retention test? Yes – Pass; No – Fail	2. 28.9	2. 4.4	PASS		
	. 3.35, . 35	3. 26.7	3. 4.4	PASS		

Comments: Maximum calculated displacement is 44.0 mm (1.73 in).

Recorded By:

Approved By:

DATA SHEET 9 WINDOW RETENTION TEST

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: NHTSA No.: CC0900
Test Date: Test Date: 10/28/11

1	Test Window Identification:	0 1	Exit W19 Upper F assenger Side)	Pane
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Single G	laze, Vertical Slidii	ng
3	Provide the horizontal and vertical glazing dimensions for each panel.		zontal: 541 mm rtical: 280 mm	
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the force per the PASS / FAIL criteria: Yes – Pass; No – Fail	Glazing Crad	cked at 41 sec – 1	513 N
	Did the window pass the force tests to unlatch	Unlatch Force Measured (N)	Open Force Measured (N)	Pass / Fail
5	and open the exit after the completion of the	1. 42.3	1. 4.4	PASS
	retention test? Yes – Pass; No – Fail	2. 35.6	2. 4.4	PASS
		3. 40.0	3. 4.4	PASS

Comments: Maximum calculated displacement is 42.2 mm (1.66 in).

Recorded Bv:

Approved By:

DATA SHEET 9 WINDOW RETENTION TEST

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: NHTSA No.: CC0900
Test Date: Test Date: 10/28/11

1	Test Window Identification:	Rear Emerg	ency Door Upper	Pane
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Sing	gle Glaze, Fixed	
3	Provide the horizontal and vertical glazing dimensions for each panel.		zontal: 580 mm rtical: 720 mm	
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the force per the PASS / FAIL criteria: Yes – Pass; No – Fail	Glazing Cra	cked at 49 sec – 2	165N
5	Did the window pass the force tests to unlatch and open the exit after the completion of the	Unlatch Force Measured (N) 1. 35.6	Open Force Measured (N) 1. 28.9	Pass / Fail PASS
	retention test? Yes – Pass; No – Fail	2. 35.6	2. 26.7	PASS
		3. 35.6	3. 26.7	PASS

Comments: Maximum calculated displacement is 60.7 mm (2.38 in).

Recorded By:

Approved By:

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

Equipment	Description	Model / Serial No.	Cal. Date	Next Cal. Date
Head Form	MGA	217	When Used	When Used
Sphere	MGA	Sphere – 1A	When Used	When Used
Load Cell	Interface	1010AF-5K-B / 258576	10/07/11	04/07/12
String Pot.	Ametek	P-25A / 1102-19183	09/02/11	03/02/12
Inclinometer	Digital Protractor	Pro 360 / 006	When Used	When Used
Digital Calipers	Mitutoyo	CD 6"CSX / 07416506	12/28/10	12/28/11
Steel Tape	Stanley	Powerlock / 604	08/04/11	02/04/12
Ellipsoid	MGA	ELLIP – 1A	When Used	When Used
Parallelepiped	MGA	PARA – 1A	When Used	When Used
Force Gauge	Wagner	FDK-60 / 18109	09/08/11	03/08/12

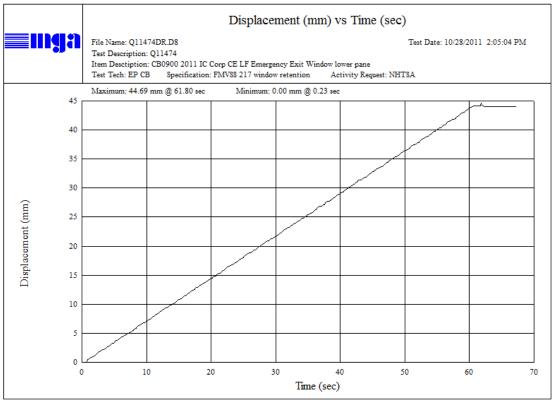
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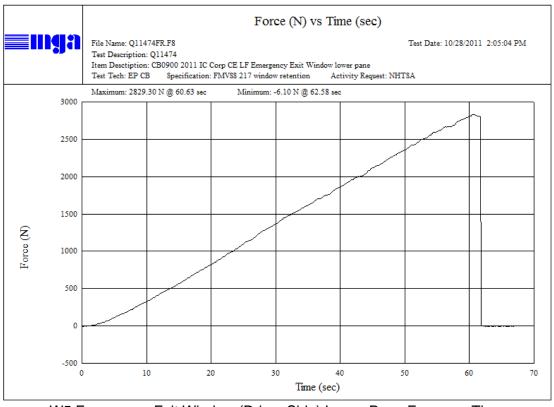
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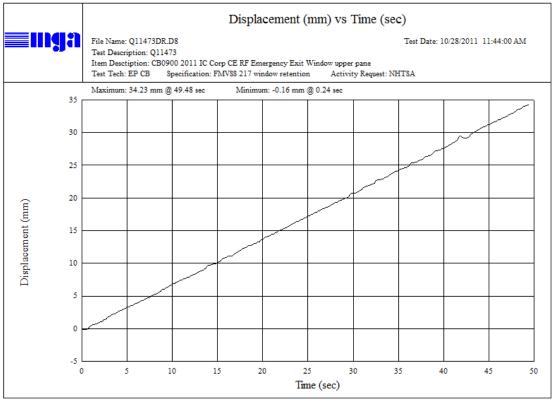
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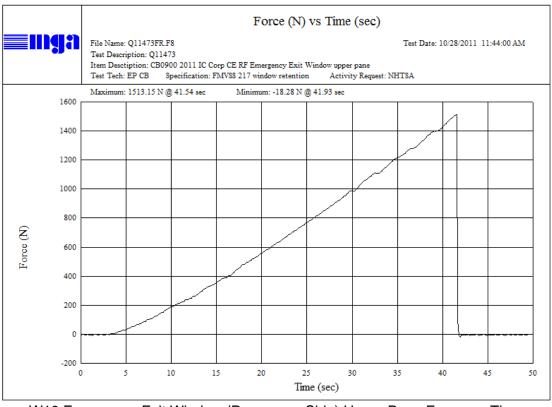
W5 Emergency Exit Window (Driver Side) Lower Pane Displacement vs. Time



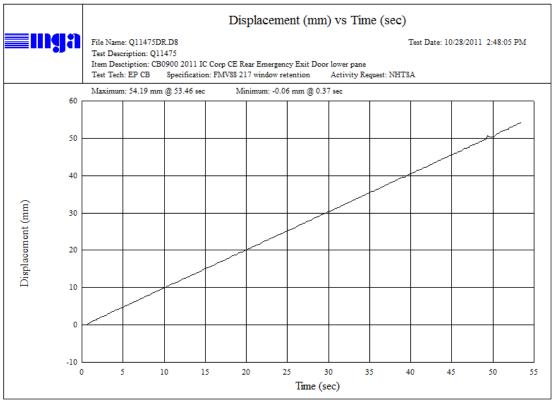
W5 Emergency Exit Window (Driver Side) Lower Pane Force vs. Time



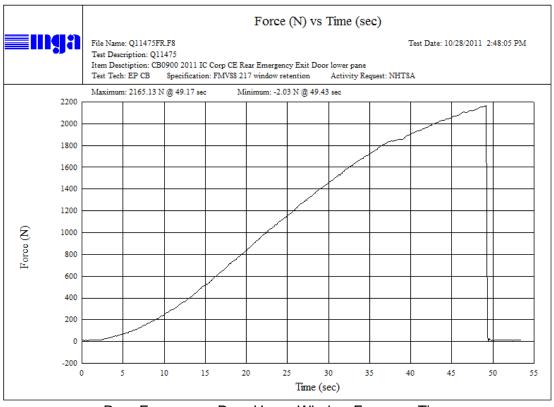
W19 Emergency Exit Window (Passenger Side) Upper Pane Displacement vs. Time



W19 Emergency Exit Window (Passenger Side) Upper Pane Force vs. Time



Rear Emergency Door Upper Window Displacement vs. Time



Rear Emergency Door Upper Window Force vs. Time

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SECTION 1 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 Procedures TP-217-06 to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 217, "School Bus Emergency Exits and Window Retention and Release".

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, appeared to meet the requirements of FMVSS 217. See Data Sheet 1 for Test Summary.

SECTION 3 COMPLIANCE TEST DATA

The following data sheets document the results of testing on the 2012 IC Corp CE School Bus, NHTSA No.: CC0900.

DATA SHEET 1 TEST SUMMARY

GENERAL VEHICLE IDENTIFICATION

Model Year / Mfr. / Make / Model	2012 / IC Corp / CE	
NHTSA No.	CC0900	
GVWR	13,517 kg / 29,800 lb	
Build Date for Bus Chassis	09/10	
VIN	4DRBUSKP6CB392585	
Seating Capacity	1 Driver, 67 Passengers	
Type of Bus	School Bus	
Tire Pressure from tire placard (at capacity)	Front: 758 kPa	Rear: 689 kPa
Odometer Reading	2,336 miles	

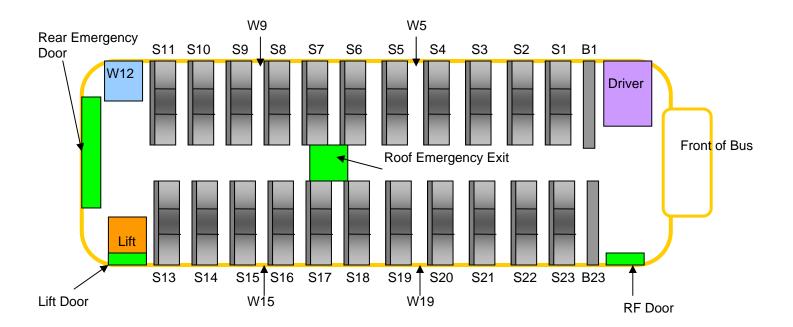
	Pass / Fail
S5.1 WINDOW RETENTION	PASS
S5.2 PROVISION OF EMERGENCY EXITS	PASS
Meets minimum exit provisions	PASS
Meets all other exit requirements	PASS
Meets requirements for additional exits	PASS
S5.2.3.1.A EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS	PASS
S5.3 EMERGENCY EXIT RELEASE	PASS
Forces to unlatch the emergency exits	PASS
Forces to open the emergency exits	PASS
S5.4 EMERGENCY EXIT OPENING	PASS
S5.5 EMERGENCY EXIT LABELING AND IDENTIFICATION	PASS
S5.5 TAPE REFLECTIVITY (49CFR 571.131)	Not Tested

Comments: None

Approved By:

DATA SHEET 2 PROVISION OF EMERGENCY EXITS

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11



		Height (mm)	Width (mm)
1	Rear Emergency Door	1485	910
2	Roof Emergency Exit	570	565
3	Emergency Exit W5	660	585
4	Emergency Exit W9	660	585
5	Emergency Exit W19	660	585
6	Emergency Exit W15	660	585

Seating Capacity: 68 (Including Driver & Passengers)

Requirements	Pass / Fail
Bus meets minimum emergency exit provision, based upon Table 2. Yes – Pass; No – Fail	PASS

DATA SHEET 2 (CONTINUED) PROVISION OF EMERGENCY EXITS

	Requirements	Pass / Fail
1	Rear Emergency Door – opens outward and is hinged on the right side (either side, if the bus has a GVWR of 10,000 pounds or less). Yes – Pass; No – Fail	PASS
2	Side Emergency Door – hinged on its forward side. No more than one side emergency exit door is located, in whole or in part, within the same post and roof bow panel space.	N/A
3	Rear Push Out Window – provides a minimum opening clearance 41 cm high and 122 cm wide (16" x 48").	N/A
4	Roof Exit – is hinged on its forward side, and operable from both the inside and outside the vehicle.	PASS
5	There is an even number of side emergency exit windows on each side of bus. Yes – Pass; No – Fail	PASS
6	The bus is not equipped with both sliding and push-out windows, (except for buses equipped with rear push out emergency exit windows).	PASS
7	A right side emergency exit door, if any, is located as near as practicable to the midpoint of the passenger compartment.	N/A

Comments: None

Recorded By:

Approved By: Date: 10/28/11

DATA SHEET 3 EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: NHTSA No.: CC0900
Test Lab: Test Date: 10/28/11

	Requirements	Pass / Fail
1	The engine starting system does NOT operate if any Emergency Exit is LOCKED. Yes – Pass; No – Fail	N/A
2	All Emergency Door and Roof Exits can be released by one person (from inside and outside of bus). Yes – Pass; No – Fail	PASS
3	When the Release Mechanism is NOT in the closed position and the vehicle ignition is in the "ON" position, there is a continuous warning sound audible at the Driver's DSP and in the vicinity of the Emergency Door(s) having the unclosed mechanism. Yes – Pass; No – Fail	PASS
4	Emergency exit release mechanism does not use remote controls or central power systems. Yes – Pass; No – Fail	PASS

Date: 10/28/11

Comments: None

Recorded By:

Approved By:

DATA SHEET 4A EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

EMERGENCY EXIT LABELING - INTERIOR

Exit Location	Rear Emergency Door	Roof Emergency Exit	Emergency Exit W5	Emergency Exit W9	Emergency Exit W19	Emergency Exit W15
Exit Description	Door	Roof Hatch	Window	Window	Window	Window
Letter Height (cm)	5.0	5.1	5.0	5.0	5.0	5.0
Background Color	White	White	White	White	White	White
Location Inside	Above Door	On Hatch	Above Window	Above Window	Above Window	Above Window
Pass / Fail	PASS	PASS	PASS	PASS	PASS	PASS

OPERATING INSTRUCTIONS – INTERIOR

Exit Location	Rear Emergency Door	Roof Emergency Exit	Emergency Exit W5	Emergency Exit W9	Emergency Exit W19	Emergency Exit W15
Instructions	To Open Lift Up Red Bar Push Out	Turn Then Push Knob To Open	Pull Handle And Push Out To Open			
Letter Height (cm)	1.7	1.2	1.0	1.0	1.0	1.0
Letter Color	Black	Red	Black	Black	Black	Black
Background Color	White	White	Clear	Clear	Clear	Clear
Distance From Release (cm)	7.5	6.0	1.5	1.5	1.5	1.5
Reflective Tape Color	N/A	N/A	N/A	N/A	N/A	N/A
Reflective Tape Width (cm)	N/A	N/A	N/A	N/A	N/A	N/A
Pass / Fail	PASS	PASS	PASS	PASS	PASS	PASS

Comments: None

Recorded By:

Approved By:

DATA SHEET 4B EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

EMERGENCY EXIT LABELING - EXTERIOR

Exit Location	Rear Emergency Door	Roof Emergency Exit	Emergency Exit W5	Emergency Exit W9	Emergency Exit W19	Emergency Exit W15
Exit Description	Door	Roof Hatch	Window	Window	Window	Window
Letter Height (cm)	5.0	5.1	5.1	5.1	5.1	5.1
Background Color	Yellow	White	Yellow	Yellow	Yellow	Yellow
Location Outside	Above Door	On Hatch	Above Window	Above Window	Above Window	Above Window
Pass / Fail	PASS	PASS	PASS	PASS	PASS	PASS

OPERATING INSTRUCTIONS - EXTERIOR

Exit Location	Rear Emergency Door	Roof Emergency Exit	Emergency Exit W5	Emergency Exit W9	Emergency Exit W19	Emergency Exit W15
Instructions	None	Turn Then Pull Knob To Open	None	None	None	None
Letter Height (cm)	N/A	1.1	N/A	N/A	N/A	N/A
Letter Color	N/A	Black	N/A	N/A	N/A	N/A
Background Color	N/A	White	N/A	N/A	N/A	N/A
Distance From Release (cm)	N/A	15	N/A	N/A	N/A	N/A
Reflective Tape Color	Yellow	Silver	Yellow	Yellow	Yellow	Yellow
Reflective Tape Width (cm)	2.5	2.5	2.5	2.5	2.5	2.5
Pass / Fail	PASS	PASS	PASS	PASS	PASS	PASS

Comments: None

Recorded By:₋

Approved By:

DATA SHEET 4 EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: NHTSA No.: CC0900
Test Date: Test Date: 10/28/11

	Requirements	Pass / Fail
1	Each required Emergency Exit is labeled with the words "Emergency Exit" or "Emergency Door" as appropriate in letters at least 5 cm high (2") of a color that contrasts with its background. Yes – Pass; No – Fail	PASS
2	Emergency Doors – The designation "Emergency Exit" or "Emergency Door" is located at the top of, or directly above the exit door on both inside and outside surfaces of the bus. Yes – Pass; No – Fail	PASS
3	Roof Exits – The designation for roof exits is located on an inside surface of the exit, or within 30 cm (11.8") of the roof exit opening.	PASS
4	Emergency Window Exits – The designation is located at the top of, or directly above, or at the bottom of the emergency window exit on both the inside and outside surfaces of the bus.	PASS
5	Exit Operating Instructions indicate all motions required to unlatch and open the exit, in letters at least 1 cm (.39") high and of a color that contrast with its background and shall be located within 15 cm (5.9") of the release mechanism on the inside surface of the bus. Yes – Pass; No – Fail	PASS
6	Each required Emergency Exit opening is outlined around its perimeter with a 2.5 cm (1") wide retroreflective tape of red, white, or yellow color. Yes – Pass; No – Fail	PASS

Date: 10/28/11

Comments: Roof tape is silver, is acceptable and considered a "Pass" per COTR.

Recorded By:

Approved By:

DATA SHEET 6A FORCE TESTS TO UNLATCH THE EMERGENCY EXITS - INTERIOR

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: NHTSA No.: CC0900
Test Date: Test Date: 10/28/11

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)		Actual Force Measured (N)		Actual Motion(s) to Release Exit	Pass / Fail
Deer				1.	37.8	Lift Red Bar	Lift Red Bar	
Rear Emergency	Door	High	178	2.	35.6	Then Push	And Push Out	PASS
Door	D001	riigii	170	3.	35.6	Out		1 733
2001				Average	36.3	Out	Out	
Doof				1.	48.9		Turn Knob Then Push Knob	
Roof Emergency	Roof Hatch	High	178	2.	44.5	Turn Then		PASS
Exit	Roof Hateri	піgп		3.	40.0	Push Knob		PASS
LXII				Average	44.5		TTIOD	
		High	178	1.	35.6	Pull Handle And Push Out	Pull Handle	
Emergency	Window			2.	35.6		And Push Out	PASS
Exit W5	vviildow			3.	35.6			1 700
				Average	35.6			
			178	1.	35.6	Pull Handle	Pull Handle	
Emergency	Window	High		2.	40.0	And	And	PASS
Exit W9	VVIIIGOW	riigii	170	3.	37.8	Push Out	Push Out	1 700
				Average	37.8			
				1.	40.0	Pull Handle	Pull Handle	
Emergency	Window	High	178	2.	40.0	And	And	PASS
Exit W19	· · · · · · · · · · · · · · · · · · ·	19.1	170	3.	40.0	Push Out	Push Out	17100
				Average	40.0			
	Window			1.	40.0	Pull Handle And	Pull Handle	
Emergency		High	178	2.	37.8		And	PASS
Exit W15				3.	40.0	Push Out	Push Out	
				Average	39.3			

Comments: None

Recorded By:

Approved By:_

DATA SHEET 6B

FORCE TESTS TO UNLATCH THE EMERGENCY EXITS - EXTERIOR

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual Force Measured (N)		Motion(s) Required to Release Exit	Actual Motion(s) to Release Exit	Pass / Fail
Door		High		1.	53.4		Rotate Handle	
Rear	Door		178	2.	62.3	Rotate Handle		PASS
Emergency Door				3.	62.3			PASS
B001				Average	59.3			
Doof				1.	71.2			
Roof	Roof Hatch	High	178	2.	71.2	Turn Knob	Turn Knob	PASS
Emergency Exit	וזטטו וומנטוו	riigii	176	3.	68.9			FA33
				Average	70.4			

Comments: None

Recorded By:

Approved By:

DATA SHEET 7A FORCE TESTS TO OPEN THE EMERGENCY EXITS – INTERIOR

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: NHTSA No.: CC0900
Test Date: Test Date: 10/28/11

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual F Measure		Motion(s) Required to Release Exit	Actual Motion(s) to Release Exit	Passage of Ellipsoid or Parallelepiped	Pass / Fail
Rear Emergency Door	Door	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Push Out	Push Out	114x61x30 Parallelepiped	PASS
Roof Emergency Exit	Roof Hatch	High	178	1. 2. 3. Average	80.1 89.0 86.7 85.3	Turn Then Push Knob	Turn Knob Then Push Knob	Ellipsoid	PASS
Emergency Exit W5	Window	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Pull Handle Then Push Out	Pull Handle Then Push Out	Ellipsoid	PASS
Emergency Exit W9	Window	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Pull Handle Then Push Out	Pull Handle Then Push Out	Ellipsoid	PASS
Emergency Exit W19	Window	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Pull Handle Then Push Out	Pull Handle Then Push Out	Ellipsoid	PASS
Emergency Exit W15	Window	High	178	1. 2. 3. Average	4.4 4.4 4.4 4.4	Pull Handle Then Push Out	Pull Handle Then Push Out	Ellipsoid	PASS

Describe in the comments section if more than one force and motion are required to unlatch the exit.

Comments: None

Recorded By:

Approved By:

DATA SHEET 7B

FORCE TESTS TO OPEN THE EMERGENCY EXITS – EXTERIOR

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual F Measure		Motion(s) Required to Release Exit	Actual Motion(s) to Release Exit	Passage of Ellipsoid or Parallelepiped	Pass / Fail
Rear	Door	High	178	1.	4.4	5 "	Pull Handle	114x61x30 Parallelepiped	
Emergency				2.	4.4	Pull Handle			PASS
Door				3.	4.4				
				Average	4.4				
Doof				1.	97.9				
Roof	Roof Hatch	High	178	2.	102.3	Pull Knob	Pull Knob	Ellipsoid	PASS
Emergency Exit	NOUI Halch	Cit Filgh	170	3.	102.3	Full KIIOD			FASS
LAIL				Average	100.8				

Describe in the comments section if more than one force and motion are required to unlatch the exit.

Comments: None

Recorded By:

Approved By:

DATA SHEET 8 EMERGENCY EXIT EXTENSION

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: NHTSA No.: CC0900
Test Lab: Test Date: 10/28/11

	Requirements	Pass / Fail
1	Exit(s) can be extended by a single person. Yes – Pass; No – Fail	PASS
2	Each emergency exit door is equipped with a positive door opening device that meets the requirements (outlined in Section S5.4.1 (3) of FMVSS 217).	PASS
3	There is a 30 cm (11.81") wide clear aisle space for each side emergency door exit.	N/A
4	For flip-up seat adjacent to the side emergency door exit it automatically assumes and retain a vertical position when not in use, so that no portion of the seat bottom is within the 30 cm (11.81") aisle clearance space	N/A
5	There is no seat or barrier which extend past the side door opening	PASS
6	There is no obstruction of door latch mechanism for the rear emergency door. Yes – Pass; No – Fail	PASS

Date: 10/28/11

Comments: None

Recorded By:

Approved By:

DATA SHEET 9 WINDOW RETENTION TEST

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

1	Test Window Identification:	Emergency Exit W5 Lower Pane (Driver Side)			
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Single Glaze, Vertical Sliding			
3	Provide the horizontal and vertical glazing dimensions for each panel.	Horizontal: 305 mm Vertical: 541 mm			
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the force per the PASS / FAIL criteria: Yes – Pass; No – Fail	Glazing Cracked at 44 mm Displacement 60 sec – 2829 N PASS			
	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test? Yes – Pass; No – Fail	Unlatch Force Measured (N)	Open Force Measured (N)	Pass / Fail	
5		1. 26.7	1. 4.4	PASS	
		2. 28.9	2. 4.4	PASS	
	,	3. 26.7	3. 4.4	PASS	

Comments: Maximum calculated displacement is 44.0 mm (1.73 in).

Recorded By:

Approved By: Date: 10/28/11

DATA SHEET 9 WINDOW RETENTION TEST

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

1	Test Window Identification:	Emergency Exit W19 Upper Pane (Passenger Side)			
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Single Glaze, Vertical Sliding			
3	Provide the horizontal and vertical glazing dimensions for each panel.	Horizontal: 541 mm Vertical: 280 mm			
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the force per the PASS / FAIL criteria: Yes – Pass; No – Fail	Glazing Cracked at 41 sec – 1513 N PASS			
	Did the window pass the force tests to unlatch and open the exit after the completion of the	Unlatch Force Measured (N) 1, 42,3	Open Force Measured (N)	Pass / Fail	
5	retention test? Yes – Pass; No – Fail	2. 35.6	2. 4.4	PASS	
	,	3. 40.0	3. 4.4	PASS	

Date: 10/28/11

Comments: Maximum calculated displacement is 42.2 mm (1.66 in).

Recorded By:_

Approved By:

DATA SHEET 9 WINDOW RETENTION TEST

Test Vehicle: 2012 IC Corp CE School Bus
Test Lab: MGA Research Corporation NHTSA No.: CC0900
Test Date: 10/28/11

1	Test Window Identification:	Rear Emergency Door Upper Pane		
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Single Glaze, Fixed		
3	Provide the horizontal and vertical glazing dimensions for each panel.	Horizontal: 580 mm Vertical: 720 mm		
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the force per the PASS / FAIL criteria: Yes – Pass; No – Fail	Glazing Cracked at 49 sec – 2165N PASS		
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test? Yes – Pass; No – Fail	Unlatch Force Measured (N) 1. 35.6	Open Force Measured (N) 1. 28.9	Pass / Fail PASS
		2. 35.6 3. 35.6	2. 26.7 3. 26.7	PASS PASS

Date: 10/28/11

Comments: Maximum calculated displacement is 60.7 mm (2.38 in).

Recorded By:

Approved By:

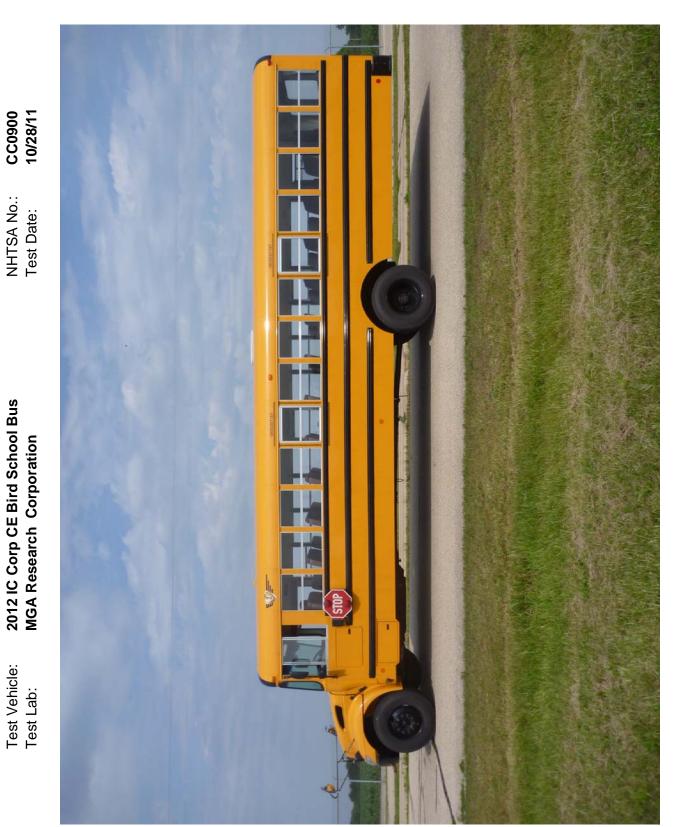
SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

Equipment	Description	Model / Serial No.	Cal. Date	Next Cal. Date
Head Form	MGA	217	When Used	When Used
Sphere	MGA	Sphere – 1A	When Used	When Used
Load Cell	Interface	1010AF-5K-B / 258576	10/07/11	04/07/12
String Pot.	Ametek	P-25A / 1102-19183	09/02/11	03/02/12
Inclinometer	Digital Protractor	Pro 360 / 006	When Used	When Used
Digital Calipers	Mitutoyo	CD 6"CSX / 07416506	12/28/10	12/28/11
Steel Tape	Stanley	Powerlock / 604	08/04/11	02/04/12
Ellipsoid	MGA	ELLIP – 1A	When Used	When Used
Parallelepiped	MGA	PARA – 1A	When Used	When Used
Force Gauge	Wagner	FDK-60 / 18109	09/08/11	03/08/12

SECTION 5 PHOTOGRAPHS

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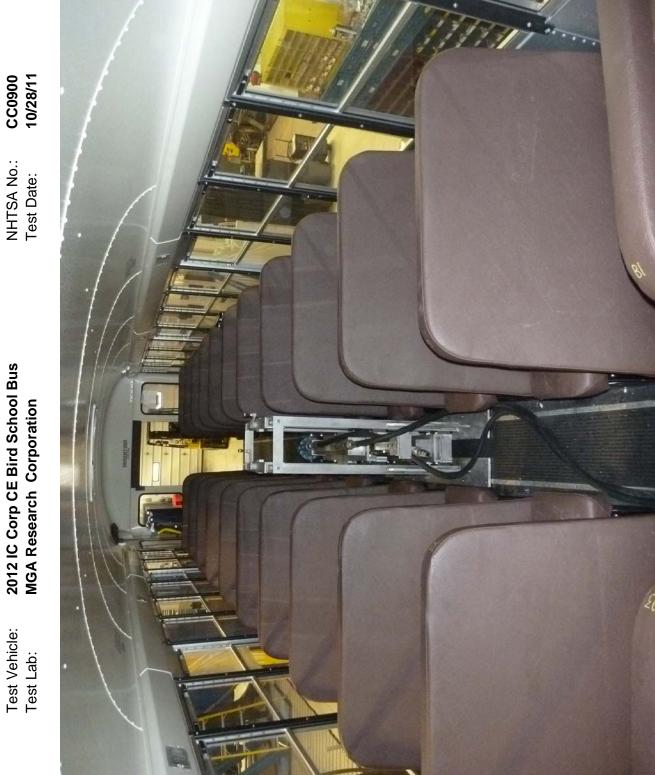


Test Vehicle: Test Lab:

2012 IC Corp CE Bird School Bus MGA Research Corporation

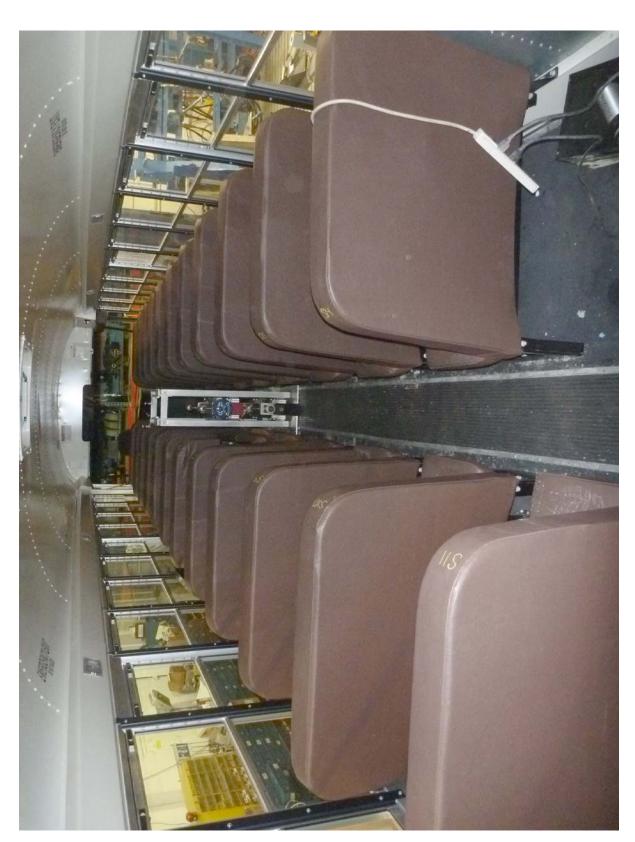


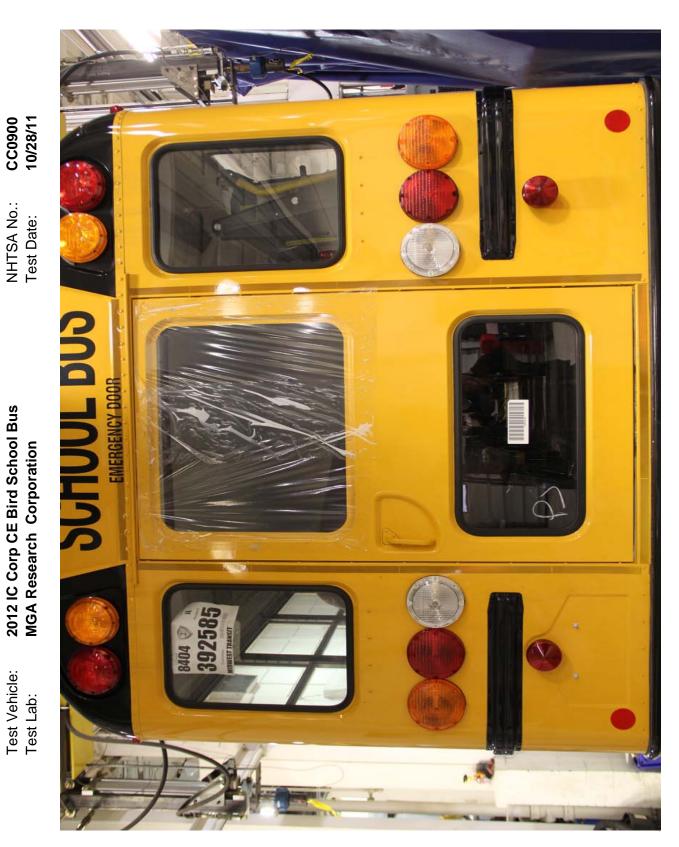
10/28/11 CC0900 NHTSA No.: SINGLE LBS) WITH Test Date: PLY AT PLY AT LBS) WITH AXLE DUAL THIS VEHICLE CONFORMS TO ALL 09 MO. 10 YR. VEHICLE SAFETY STANDARDS IN 110 PSI) COLD MANUFACTURE SHOWN ABOVE. AXLE APPLICABLE FEDERAL MOTOR 4 MANUFACTURED BY 13,517 KGS (29,800 LBS MANUFACTURED BY EFFECT ON THE DATE OF IC CORPORATION **GAWR FRONT 4,536 KGS (10,000** KGS (21,000 22.5X7.50 22.5X8.25 VEHICLE IDENTIFICATION NO. WULL-TIRES SCHOOL BUS # 392585 DATE OF MANUFACTURE 4DRBUSKP6CB392585 9,525 265/75R22.5G 295/75R22.5G ХDa X Da VEHICLE TYPE GAWR REAR RIMIS RIMS GVWR



CC0900 10/28/11

NHTSA No.: Test Date:









Test Vehicle: Test Lab:

2012 IC Corp CE Bird School Bus MGA Research Corporation



CC0900 10/28/11 NHTSA No.: Test Date: Test Vehicle: Test Lab:

2012 IC Corp CE Bird School Bus MGA Research Corporation



Window Emergency Exit Identification Close-Up 2 (Inside View)

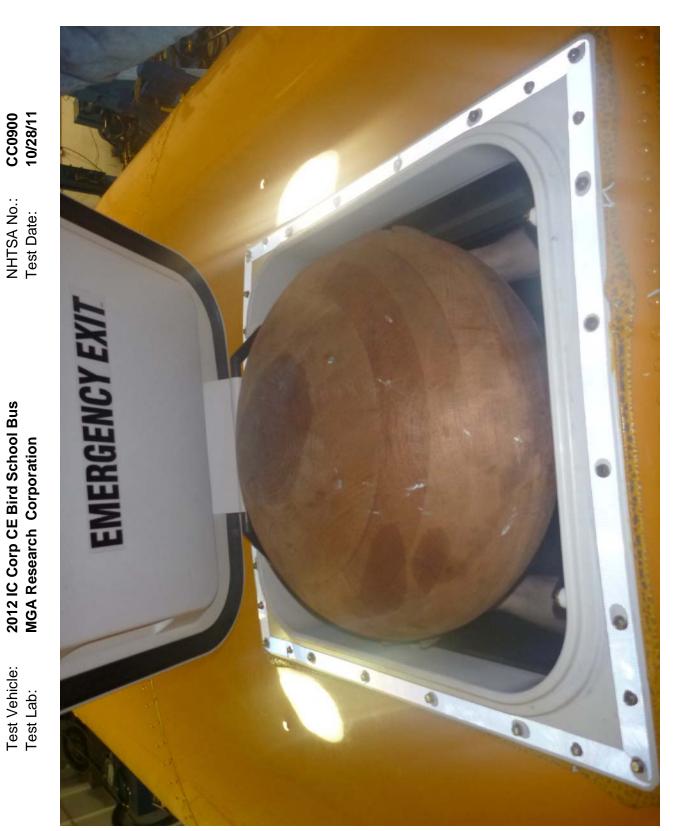


Test Vehicle: Test Lab:

2012 IC Corp CE Bird School Bus MGA Research Corporation



Roof Emergency Exit Identification (Inside View) / Ellipsoid Clearance





Window Retention Test of W5 Emergency Exit Lower Pane Pre-Test (Driver Side)

EMERGENCY EXIT

CC0900 10/28/11

NHTSA No.: Test Date:

2012 IC Corp CE Bird School Bus MGA Research Corporation

Test Vehicle: Test Lab:

Window Retention Test of W5 Emergency Exit Lower Pane Post-Test (Driver Side)

CC0900 10/28/11 NHTSA No.: Test Date: 2012 IC Corp CE Bird School Bus MGA Research Corporation Test Lab:

Test Vehicle:

Window Retention Test of W19 Emergency Exit Upper Pane Pre-Test (Passenger Side)

Test Vehicle: Test Lab:

2012 IC Corp CE Bird School Bus MGA Research Corporation



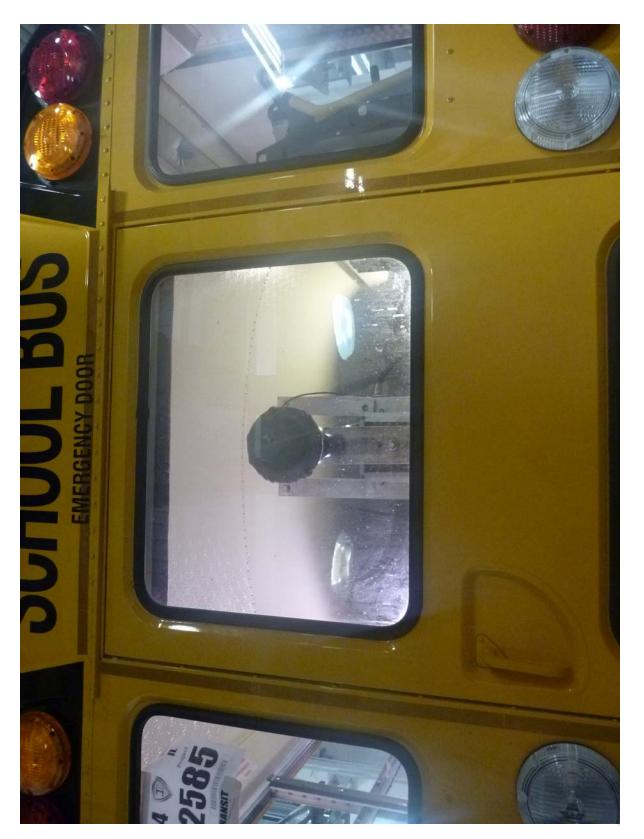
Window Retention Test of W19 Emergency Exit Upper Pane Post-Test (Passenger Side)

CC0900 10/28/11 NHTSA No.: Test Date:

Window Retention Test of Rear Emergency Door Upper Pane Pre-Test

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

NHTSA No.: **CC0900** Test Date: 10/28/11

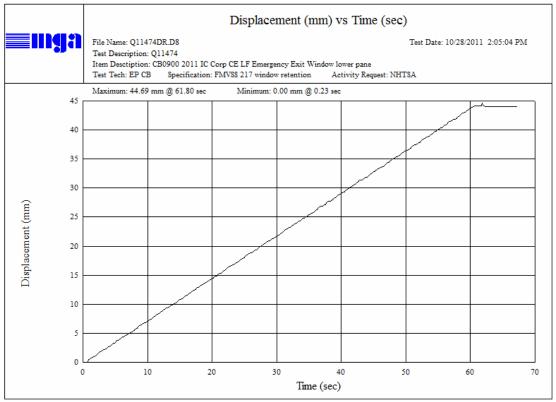


Window Retention Test of Rear Emergency Door Upper Pane Post-Test

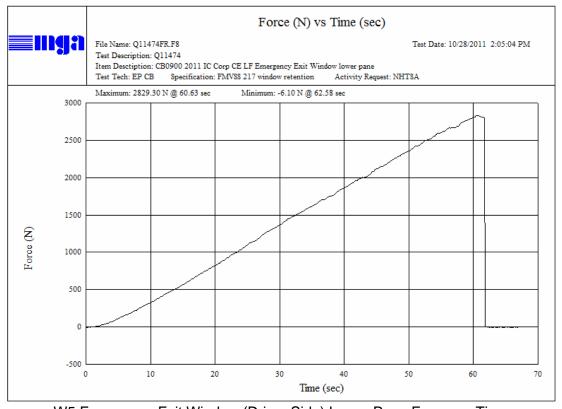


TABLE OF TEST PLOTS

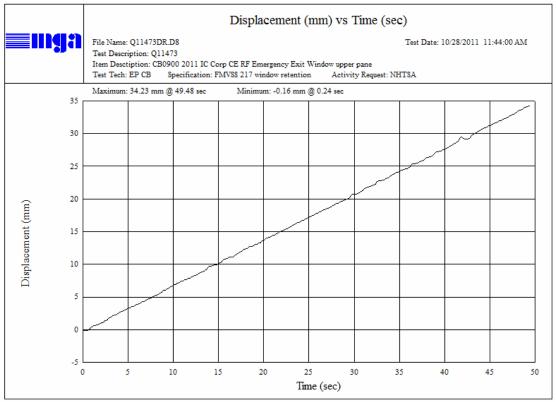
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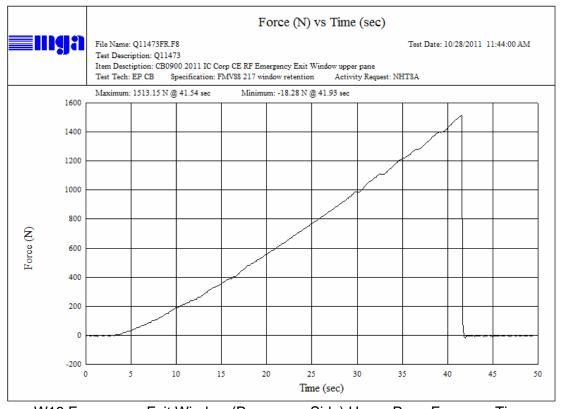
W5 Emergency Exit Window (Driver Side) Lower Pane Displacement vs. Time



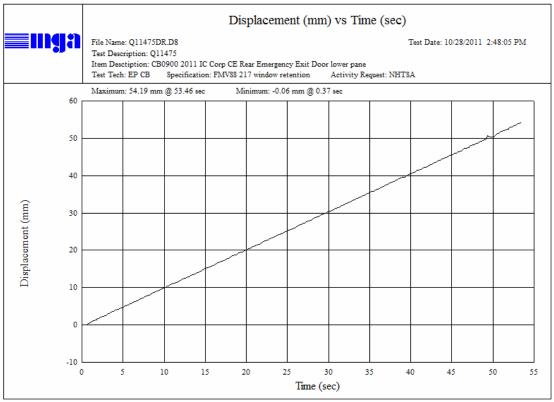
W5 Emergency Exit Window (Driver Side) Lower Pane Force vs. Time



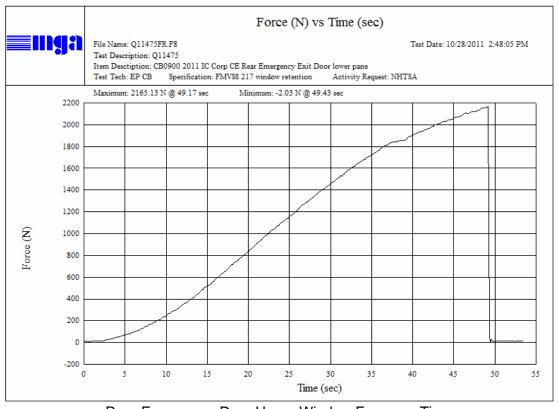
W19 Emergency Exit Window (Passenger Side) Upper Pane Displacement vs. Time



W19 Emergency Exit Window (Passenger Side) Upper Pane Force vs. Time



Rear Emergency Door Upper Window Displacement vs. Time



Rear Emergency Door Upper Window Force vs. Time