AUTOMOTIVE MANUFACTURERS EQUIPMENT COMPLIANCE AGENCY, INC.

AMECA™

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NOTIFICATION NUMBER: 111058

TEST REPORT DATE: DECEMBER 22, 2011

EXPIRATION DATE: JANUARY 1, 2015

APPLICANT: FUYAO GLASS INDUSTRY GROUP CO., LTD.
FUYAO INDUSTRY AREA
FUQING CITY, FUJIAN PROVINCE 350301
P.R. CHINA

ITEM: "DOT-459, AS-1, M-854" - 5.36 MM NOMINAL THICKNESS GREEN TINTED LAMINATED SAFETY GLASS WITH OR WITHOUT SHADE BANDS; WITH OR WITHOUT OBSCURATION BANDS

USE: ANYWHERE IN A MOTOR VEHICLE

JURISDICTIONAL COMPLIANCE STANDARD(S)
IDENTICAL TO: UNITED STATES FMVSS 205
CANADIAN CMVSS 205

MARKINGS: FUYAO
FY (FUYAO GLASS INDUSTRY GROUP LOGO)

TEST LAB: CHINA NATIONAL SAFETY GLASS & QUARTZ GLASS TEST CENTER

REPORT NUMBER: 01894

Executive Director

AUTOMOTIVE MANUFACTURERS EQUIPMENT COMPLIANCE AGENCY, INC. CORPORATE SEAL 1994 MARYLAND

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Equipment Compliance Agency, Inc.
P.O. Box 76960 • National Capitol Station • Washington, D.C. 20013-6960
Telephone: 202-898-0145 • FAX: 202-898-0148 • www.ameca.org

Application for Compliance Notification

1. Model name/number of device DOT-459 AS- 1 M- 854

2. Description of device 5.36mm green laminated safety glass with or without shade bands, with or without obscuration bands

3. Manufactured by Fuyao Glass Industry Group Co., Ltd.
   Address Fuyao Industry Area
   City/State Fuqing City, Fujian Province
   Country P. R. China ZIP/Postal Code 350301

4. Make of vehicle and model year on which device will be used (when applicable)
   Motor vehicle

5. Laboratory test report submitted (report must cover actual item/sizes submitted)
   Name of laboratory China National Safety Glass & Quartz Glass test Center
   Report no. 01894 Report date Dec. 22, 2011

6. Type of application

$350.00 (Y) Initial Notification
$350.00 ( ) Reconfirmation; indicate previous notification no.:_____
$350.00 ( ) First item of a Family Series(the Family Series designation applies only to certain device categories; please see the AMECA Manufacturers Guide for more information)
$75.00 ( ) Subsequent items of a Family Series; indicate notification no. of first item:_____
$75.00 ( ) Brand registration (brake fluid and antifreeze/engine coolants only)
$75.00 ( ) Revision; indicate notification no.:_____

7. Applicant Fuyao Glass Industry Group Co., Ltd.
   Address Fuyao Industry Area
   City/State Fuqing City, Fujian Province ZIP/Postal code 350301
   Country P. R. China Contact Personal Cho Takwong
   Telephone +86-591-5382726 FAX +86-591-5383666
   Email address:_____ Company Website:_____

8.Mail notification to (please specify when other than Applicant)
   Wang Rui, Glass Institute, China Building Materials Academy,
   Guanzhuang, Chaoyang District, Bejing 100024,
   P. R. China

NOTE: Emailed application forms should be sent to: submissions@ameca.org
Air express or overnight packages should be sent to: AMECA
1101 15th Street NW, Suit 607
Washington, D.C. 20005

TEST REPORT

China National Safety Glass & Quartz Glass test Center

(accredited by AMECA, U.S.A.)

Address: **China Building Materials Academy**
Guanzhuang, Beijing, 100024
P. R. China
Phone: **(010)51167357**
Fax: **(010)65761715 or 65711591**

Order No.: 1-933 Date: Dec. 22, 2011

Report No.: 01894

TEST OF 5.36 MM GREEN LAMINATED SAFETY GLASS CONSISTING OF 2.3 MM GREEN GLASS, 0.76 MM CLEAR PVB, 2.3 MM GREEN GLASS WITH OR WITHOUT SHADE BAND, WITH OR WITHOUT OBSCURATION BAND.

DOT-459 M-854 AS-1

RENDERED TO: **Fuyao Glass Industry Group Co., Ltd.**

Introduction

This report contains the results of examination and test of the above automotive safety glass to demonstrate compliance with the applicable requirements of the Federal Motor Vehicle Safety Standard 205 of the National Motor Vehicles Safety Act of 1966.

Summary

The following is a summary of the results of tests performed in accordance with ANSI Standard Z26.1-1996.

TEST	REMARKS
1- Light Stability	Complies
2-Luminous Transmittance	Complies
3-Humidity	Complies
4-Boil	Complies
9-Impact, Dart, 30 Feet	Complies
12- Impact, Ball, 30 Feet	Complies
15- Deviation and Distortion	Complies
18- Abrasion Resistance	Complies
26- Penetration Resistance	Complies

Authorization

LETTER DATED: Aug. 29, 2011

Material Submitted

5.36 mm±0.4mm green laminated safety glass consisting of 2.3 mm green glass, 0.76 mm clear PVB, 2.3 mm green glass with or without shade band, with or without obscuration band.

DOT-459 M-854 AS-1

Specimens Submitted

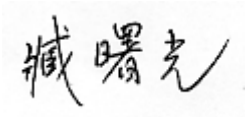
Forty	(40) - 12×12 – inches (305×305mm) flat
Three	(3) - 4×4 – inches (102×102mm) flat
Four	(4) - 12×12 – inches (305×305mm) curved
Three	(3) - 3×12 – inches (76×305mm) flat

Approval Markings

or FUYAO

DOT-459 M-854 AS-1

Checked by: ***Zang Shuguang***



Test and Test Result

Test Nos. 1 and 2 – Light Stability and Luminous Transmittance

Three 3×12 – inch flat specimens were tested for regular (parallel) luminous transmittance at normal incidence using ICI Illuminant A, before and after irradiation from a ultraviolet radiation test cabinet, under standard operation. Time of exposure was 100 hours.

After the transmittance measurements were made, the same three irradiated specimens were immersed, vertically on edge, in water at 150° F for three minutes and then transferred to and similarly immersed in boiling water for ten minutes.

Results

Percent Transmittance

Specimen No.	Before Irradiation	After Irradiation	Light transmittance reduced by irradiation
1	78.4	78.3	0.1
2	78.3	78.2	0.1
3	78.3	78.2	0.1
Test No. 2- Specified	70min	70min	–

Test No.1- Specified-The regular (parallel) luminous transmittance of the exposed specimens shall be reduced no more than 5%. A very slight discoloration, noticeable only when specimens are placed on a white background, may develop, but defects other than this discoloration shall not develop

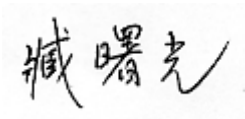
Test No.3 – Humidity

Three 12×12 – inch flat specimens were kept for two weeks in closed container over water, the air temperature in container being maintained within the limits of 120° F and 130° F (49℃ to 54℃). The relative humidity was about 99%.

Result – No indication of separation, bubbles or decomposition could be seen in any of the specimens tested.

Specified – No separation of materials shall develop, except for occasional small spots, none of which shall extend inward from the adjacent edge of the specimen to a depth of more than 1/4- inch.

Checked by: ***Zang Shuguang***



Test and Test Result (Cont'd)

Test No.4- Boil

Three 12×12 – inch flat specimens were immersed vertically on edge inwater at 150° F for three minutes, then the quickly transferred to boiling water for two hours.

Results – An examination of the specimens after this test showed no indication of bubbles, cracks or other defects.

Specified – Glass may crack, but no bubbles or defects shall develop more than 1/2-inch from the outer edge of specimen or from any cracks that may develop.

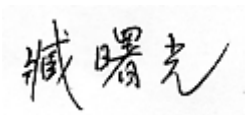
Test No.9 – Impact (Dart Test, 30 Foot Drop)

Five 12×12 – inch flat specimens were separated and kept at a temperature of 70° F to 85° F (21℃ to 29℃) for a minimum of four hours immediately preceding the test. The specimens were supported horizontally in steel frame made in accordance with Fig. 1 of the Standard. A 7-oz. steel dart, made in accordance with Fig.3 of the Standard, was dropped 30 feet, once on each specimen, freely and from rest, the nose striking within 1 inch (25mm) of its center.

Results – All specimens revealed major cracks extending radiantly from the point of impact but there were no loose or detached sections. The dart punctured the specimens but did not go through at the point of impact. The glass on adjacent sides of each crack extending from the area punctured by the dart was held in place by the reinforcing or strengthening material for a distance greater than 1-1/2 inches from a crack. None of the specimens tested broke into two or more separated pieces.

Specified – The dart may crack the glass and puncture the test specimen. However, the hole so produced in the specimen shall not be sufficiently large to permit the passage of the body of dart completely through the test specimen. Small particles may disengage themselves from both sides of the specimen at and immediately around the point of impact, but no loose or detached pieces shall leave any area of the specimen exclusive of the area punctured by the dart. Furthermore, the glass on adjacent sides of each crack extending from the area punctured by the dart shall be held in place by the reinforcing or strengthening materials and no glass shall be freed from reinforcing or strengthening material for distance greater than 1-1/2 inches from a crack. Not more than one specimen shall break into separate large pieces.

Checked by: ***Zang Shuguang***



Test and Test Result (Cont'd)

Test No.12- Impact (Ball, 30 Foot Drop)

Twelve 12×12 – inch flat specimens were separated and kept at a temperature of 70° F to 85° F (21℃ to 29℃) for a minimum of four hours immediately preceding the test. The specimens were supported horizontally in steel frame made in accordance with Fig. 1 of the Standard. A 1/2-lb. solid smooth, steel sphere was dropped 30 ft, once, freely and from rest, striking the specimen within 1 inch (25mm) of its center.

Result – All specimens revealed considerable cracks from the point of impact but there were no loose or detached sections. In each case, the specimen could still be held by hand. The ball did not penetrate the specimens. None of the specimens tested broke into large pieces, all remained. No holes developed in any specimen. Less than one square inch of reinforcing or strengthening material was exposed at any point and the total separation of glass from reinforcing material did not exceed 3 square inches.

Specified – The impact may produce a large number of cracks in the glass, not more than two of the specimens shall break into separate large pieces, nor shall more than two of the specimens develop a hole. Small fragments of glass may leave the specimen at the point immediately opposite the point of impact, but the small area thus affected shall expose less than one square inch of reinforcing or strengthening material. Total separation of glass from reinforcing material shall not exceed 3 square inches.

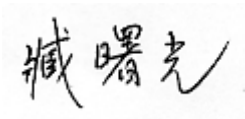
Test No.15- Optical Deviation and Visibility Distortion

Optical Deviation- Ten 12×12 – inch flat and three 12×12 – inch curved specimens were placed 25 feet from the face of an illuminated box, made in accordance with Fig. 4 of the Standard and positioned so that the area of the specimen being examined was normal to the line of vision between the light source and the examiner's eye. The entire area of the specimen was surveyed.

Result- In on case was the shift of the secondary image beyond the point of tangency with the inside edge of the circle.

Specified- Throughout the area surveyed there shall be no shift of the secondary image beyond the point of tangency with the inside edge of the circle.

Checked by: ***Zang Shuguang***



Test and Test Result (Cont'd)

Visibility Distortion – A 500-watt lantern slide projector was focused on the screen 25 feet distant. The specimens were placed between the lantern and the screen, close to and parallel with the screen. The specimens were moved toward the lantern in steps of 5 inches and the shadow in the screen observed.

Results- Ten 12×12 – inch flat and three 12×12 – inch curved specimens were tested and no light and dark patches were observed in any of the specimens, with the specimens within 25 inched from the screen.

Specified- No light and dark patches existent over the entire area, shall appear in the shadow of the unmasked area of the specimens before the specimen shall have been moved a distance of at least 25 inches from the screen.

Test No.18- Abrasion Resistance

Three 4×4 – inch flat specimens were subjected to a test with the Taber Abraser loaded to 500 grams on each wheel operated under standardized conditions for 1,000 cycles. The light scattered by the abraded track was measured and the results computed in accordance with the requirements of the Standard.

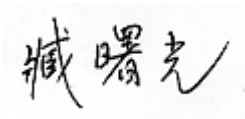
Results- The arithmetic mean of the percentage of light scattered was less than two percent.

Percent

Specimen No.	Haze of Track	Haze of Glass	Net Haze	Arithmetic Mean
1	1.20	0.69	0.51	
2	1.12	0.68	0.44	0.48
3	1.18	0.69	0.49	

Specified –The arithmetic mean of the percentage of light scattered by the three abraded specimens shall not exceed two percent.

Checked by: ***Zang Shuguang***



Test and Test Result (Cont'd)

Test No.26 – Penetration Resistance

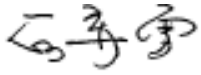
Ten 12×12 – inch substantially flat specimens, as submitted, were tested. The specimens were separated and kept at a temperature of 70° F to 85° F for a minimum of four hours immediately preceding to ensure an even temperature throughout each specimen when tested. The specimens were supported in steel frame made in accordance with Fig. 1 of the Standard. The frame was so supported that the plane of the specimen was substantially horizontal. A 5-lb. solid smooth, steel sphere was dropped from the height of 12 ft once, freely and from rest, strike the center of the face glazed to the inside of the vehicle.

Results- Ten 12×12 – inch flat specimens cracked at the point of impact. None of specimens was penetrated by the ball.

Specified- The impact may produce a large number of cracks in the glass and may cause tears in reinforcing interlayer material. The impact may furthermore produce a substantial permanent deformation in the shape of the originally substantially flat specimen. However, with no more than two of the specimens shall the ball pass completely through the specimen within a five second interval after impact, either by what could be described as a puncture of the specimen or by means of the specimen fracturing into relatively large pieces that subsequently fold aside to permit passage of the ball.

***Note:** In addition, samples with the shade bands or the obscuration bands were subjected to the boil and humidity tests. And there were no defects or decomposition after tests. All other test samples, with or without shade bands, with or without obscuration bands, were picked at random.

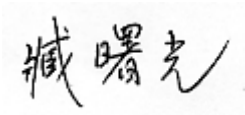
Report Approved by: **Report Prepared by:**



Shi Xinyong

Wang Rui

Checked by:



Zang Shuguang