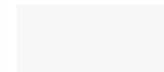


# **The explanatory statement on proposed amendments to GTR 6 by the KOREA**

**24. Feb. 2016**



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# 1. Introduction

- It is very difficult to find out why the glazing of panoramic sunroof breaks because of the breakage characteristics of toughened glass.
- When Korea Automobile Testing and Research Institute (KATRI) had carried out defect investigation of glazing breakage on panoramic sunroof in 2013, (KATRI) requested the vehicle manufacturers to provide glazing breakage cases of panoramic sunroof on the road.
- KATRI was only at the beginning stage of investigation into the cause of toughened glass breakage of panoramic sunroof at the time when KATRI received the data(9 cases) from vehicle manufacturers.
  - Therefore, KATRI did not know that the CPA(ceramic printed area) is vulnerable
  - Also, KATRI did not considered the CPA as the breakage cause of the toughened glass on panoramic sunroof.

# 1. Introduction

- **KATRI had analyzed the data received from vehicle manufacturers and found out that all of the nine cases had the marks of external impacts in the CPA(ceramic printed area).**
- **Therefore, KATRI had investigated the characteristics of the CPA and confirmed that the CPA is weaker than the mechanical strength of non-CPA.**

## 2. Breakage of toughened glass on panoramic sunroof

- The photographs of broken toughened glass on panoramic sunroof
  - The marks of external impact were found in the CPA of every panoramic sunroof in all pictures of glass breakages provided by vehicle manufacturers.



## 2. Breakage of toughened glass on panoramic sunroof

- The photograph of broken toughened glass on panoramic sunroof
  - The picture shows that the non-CPA located at the center of toughened glass shatter into pieces and pours into the vehicle if the CPA located at the outer boundary of toughened glass of panoramic sunroof is damaged by external impact.



### 3. Summary

- The CPA of toughened glass on panoramic sunroof may be hit by external objects while driving. If so, the CPA can easily shatter by external impacts because it is weaker than strength of CPA.
  - Due to the characteristics of toughened glass, in case any part of toughened glass is damaged, the entire sheet of glass could shatter into pieces and fall down into the vehicle.
    - This would blur the driver's vision and may lead to secondary accident such as crash against nearby vehicles.
- ➔ Ceramic printed areas would not be the sole cause behind the breakage of toughened glass on panoramic sunroof while driving. However, it is certain that the ceramic printed area shatters easily if it is hit by external objects.



The glass breakage of panoramic sunroof while driving would decrease if ceramic print area is restricted to the minimum.

## 4. GTR 6 amendment proposed by the KOREA

- The definition should be clear to reflect the mechanical strength of toughened glass
  - The definition should clearly indicate that the mechanical strength of toughened-glass shall be stronger than the annealed-glass.

*Part B, paragraphs 3.3.7 and 3.1.6., amend to read:*

“3.3.7. Uniformly toughened-glass : means glazing consisting of a single layer of glass which has been subjected to special treatment to increase its mechanical strength before toughened glass and to condition its fragmentation after shattering.



## 4. GTR 6 amendment proposed by the KOREA

### ● The scope of toughened glass which would be subject to the amendment of GTR 6

- GTR 6 amendment will be applied to the minimum coverage of toughened glass which may negatively affect safe driving in the case of sudden breakage while driving.

*Paragraph 6.3.4.1., amend to read:*

“6.3.4.1 The test piece shall be 300 x 300 mm flat sample, specially made or cut from the flattest part of a windscreen or pane. The test piece shall be as defined in paragraph 7.2. in the case that the following toughened glass of vehicles is exposed to the inside of vehicle:

- (a) Sunroofs and panoramic sunroofs
- (b) The roof of vehicle

## 4. GTR 6 amendment proposed by the KOREA

### ● Test methods depending on the range of CPA. (In the case of conducting test on non-ceramic printed sample.)

- Conduct the ball drop test on non-ceramic printed sample if CPA is less than minimum allowable range.

*Annex 7, Insert new paragraph 7.2., to read:*

“7.2 Annex 7.2. Procedures for determining test pieces for toughened glass

7.2.1 Test pieces shall be determined as follows:

7.2.1.1 Determination of test pieces which does not have opaque obscuration area

7.2.1.1.1 Test pieces shall be 300 x 300 mm flat samples which is specially manufactured not to have any opaque obscuration area, if paragraphs 7.2.1.1.2. and 7.2.1.1.3. of this annex are met.

7.2.1.1.2 For mounting the glass to vehicle, toughened glass shall incorporate opaque obscuration area no longer than (00) mm from the edge of the finished product outline.

7.2.1.1.3 If two different sheets of toughened glass adjoin each other's edge of the finished product outline, the total width of opaque obscuration area shall be no longer than (000) mm.

## 4. GTR 6 amendment proposed by the KOREA

- **Test methods depending on the range of CPA. (In the case of conducting test with 100%-ceramic printed sample.)**
  - **Conduct the ball drop test on 100% ceramic printed sample if CPA exceeds minimum allowable range.**

### 7.2.1.2 Determination of opaque obscuration test pieces

7.2.1.2.1 If a finished product does not comply with the requirements of paragraphs 7.2.1.1.2. and 7.2.1.1.3, test pieces shall be 300 x 300 mm flat samples, specially manufactured to have opaque obscuration area printed inside.

**Thank you!**