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OFFICE OF DEFECTS INVESTIGATION &  
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December 18, 2014

**VIA FEDERAL EXPRESS**

Frank S. Borriss II, Director  
Vehicle Integrity Division  
Office of Defects Investigation  
U.S. Department of Transportation  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue, S.E.  
Washington D.C. 20590

Re: **Engineering Analysis (EA14-002)**  
**Panorama Sunroof Option (MY) 2011-2014 Kia Sorento**

Dear Director Borriss:

This letter contains Kia's response to Request Number 12 of the IR letter dated October 24, 2014 sent to Kia Motors America, Inc. (Reference NVS-212eer/EA14-002) and confidential English translations of the Korean language documents submitted with Kia's November 26, 2014 response pursuant to the extension granted by NHTSA on November 20, 2014.

**REQUEST NO. 12:**

Furnish Kia's assessment of the alleged defect in the subject vehicle, including:

- a. The causal or contributory factor(s);
- b. The failure mechanism(s);
- c. The failure mode(s);
- d. The risk to motor vehicle safety that it poses; and
- e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and
- f. The reports included with this inquiry.

**RESPONSE TO REQUEST NO. 12:**

**a-e:**

KMA began investigating issues related to sunroof breakage claims in 2012. KMA responded promptly to field reports of such breakage, and had field personnel look at such

broken sunroof incidents. To provide more detailed analyses, Kia subsequently had KMA engineers conduct inspections and then obtained the assistance of the sunroof supplier, Webasto Products North America, and its engineers for such inspections. The Webasto organization is the major leader in the automotive industry for a wide range of glass structures including panoramic sunroof assemblies. As a result, their managers and engineers carry their own template of comparative information as to the industry and they have consistently advised Kia that the 2011-2013 Sorento panoramic sunroof falls well within industry design and manufacturing norms.

It is recognized that field investigations of broken sunroofs are difficult to evaluate, especially for those engineers not expert in glass issues. Part of the reason for this is that the nuggets of tempered glass resulting from such breakage can be readily lost before an inspection occurs, either due to lift in air pressure causing those nuggets to go up and over the vehicle roof, or because the customer or repair shop cleans up and disposes of the nuggets. Additional roof scratch damage is also difficult to evaluate – and even difficult to see – but when present it can assist in identifying the nature of the breakage events. After extensive field investigations, Webasto and Kia engineers were certain that the identifiable breakage events were all occurring due to impacts from objects on the roadway. In addition, the information from the breakage reports established a consistent pattern that there were no incidents where driver difficulty in vehicle control became a concern. Finally, it was observed that most occupants did not experience any injury. Any identified injuries were minor with low safety risk and the consequences almost exclusively involving nick-type cuts or scratches.

Kia and Webasto also conducted thorough reviews of all manufacturing and assembly processes, and obtained the assistance of the glazing manufacturer, Guardian, for the same purpose. They concluded that no design, manufacturing or assembly defect existed. All reviews of manufacturing and assembly information since that time has remained consistent. As a result, at no time have there been any relevant changes to the sunroof design or assembly or the related manufacturing processes for the 2011-2013 Sorento.

After Kia completed its detailed analysis, KMA began a comparative survey of reports of sunroof breakage related to other manufacturer makes and models and found a consistent series of comments and reports that provided the same story; i.e., that unless there was a failure in the manufacturing process, breakage typically was caused by external impacts, and that breakage either did not have any injury consequence or that they were minor.

KMA also reviewed in detail the NHTSA PE and EA investigations of the 2004-2006 Cadillac SRX with their “Ultraview” panoramic sunroofs. As part of their safety risk evaluation, GM reached the same conclusions as Kia regarding the cause of panoramic sunroof breakage. In fact, the most noteworthy difference between the SRX and the Sorento is that the Weibull analysis for the SRX predicts a claims rate nearing 1.0% while the rate projected for the Sorento is only about 0.35%. GM also reported in a public document that NHTSA’s peer analysis resulted in a finding that 15 of 18 peer models had reports of sunroof fractures with two of the three no-incident models having sales below 2,000 vehicles each. That is, sunroof breakage is a normal, if not, random event in the field. GM’s final analysis indicated that in the few incidents where injury resulted, they involved minor skin abrasions or lacerations (nicks) and minor eye irritation. Moreover, GM identified that the reason for this is due to the nature of the fractured

tempered glass which is to create nuggets which are low in both mass and velocity. See Cadillac SRX Ultraview Sunroof Investigation (EA06-001) presented to NHTSA September 14, 2006.

NHTSA's closing resume on December 1, 2006 concluded that there was no identified defect in manufacturing, design or quality control and that other vehicles with large glass roof systems experience random stone/object impacts and broken glass panels. As to the safety risk issue, NHTSA noted, "[w]hen tempered glass breaks, the fracture spreads across the entire glass panel and produces many small fragments without jagged edges or sharp shards." This statement is consistent with NHTSA's historical evaluation of the fracture properties of tempered glass in prior rulemaking for FMVSS 205. 57 FR 2496, 2499 (Notice of Proposed Ruling Making, Federal Motor Vehicle Standard, Glazing Materials, January 22, 1992). NHTSA further found higher breakage rates for other manufacturers and models than the Cadillac SRX, but NHTSA did not thereafter commence investigations into those makes/models with higher rates.

Kia then followed up on the issue by discussing the Sorento sunroof with ODI. The PE investigation commenced 4 months later.

Based on an analysis of all issues, Kia confirmed the following during the PE investigation:

1. There is no manufacturing, assembly, or design defect in the Sorento panorama sunroof;
2. All the tempered safety glass used in the Sorento sunroof complies with FMVSS 205 standards;
3. For years manufacturers have been using tempered glass for sunroofs, a choice provided by FMVSS 205, because it is a proven technology with low risk of meaningful injuries;
4. The performance of the Sorento sunroof glass is consistent with quality tempered glass;
5. No crashes nor serious or moderate injuries related to Sorento sunroof fractures have occurred; and
6. All identifiable sunroof fracture events have been caused or are likely to have been caused by external impacts with rocks or road debris.

Kia has undertaken two major activities since its PE response. The first effort was initiated as a result of inquiries at ODI as to whether any actions such as a plastic coating could be undertaken in the field to keep the tempered glass nuggets away from the occupant compartment. This resulted in a lengthy evaluation procedure by Kia involving major industrial suppliers, such as DuPont and 3M, in which Kia learned that there were significant problems perceived by those suppliers in both production and field applications of plastic coatings. Testing was eventually conducted by KMC involving two supplier products encompassing 13 test categories conducted over a three month period. These and other tests revealed significant concerns which, to date, have not been resolved:

1. If a plastic coating is applied to the interior of the glass, upon breakage it will now retain the integrity of its mass, rather than separating into small, light nuggets, and thus aerodynamically lift out of the sunroof opening and create a risk of sailing into vehicles, motorcycles and pedestrians.
2. If plastic film is applied to the exterior of the glass, it will retain its position and the nuggets will slowly break apart. However:

- a. The tempered glass breaks at a significantly lower ball drop height in the FMVSS 205/ANSI Z26.1 drop ball test, raising rollover ejection/retention concerns
- b. If the plastic film coating creates in NHTSA's view a laminated glass product, the sunroof glass then fails to meet certain laminated glass test requirements of FMVSS 205/Z26.1
- c. There is an increased risk of wear and deterioration of the plastic coating over prolonged periods
- d. To the extent that NHTSA is concerned with the possibility of driver distraction issues, the noise of breakage inside the passenger compartment increases from 80dB to 100dB

Kia presented these issues to NHTSA on August 20, 2014, with the underlying concern that glass with a plastic coating might increase rather than reduce safety risk, and requested NHTSA's input on these issues, including from ODI's specialist departments.

Kia has also reviewed NHTSA's VOQ database to analyze whether its data provides any guidance on this issue. While Kia recognizes that NHTSA is best equipped to evaluate VOQ data, Kia has made the following determinations which it believes is reasonably correct:

- There are VOQ reports of sunroof breakage during the 2004-2015 model years (12 model years) for 18 makes and 57 models.
- The total number of VOQs reporting breakage is 203.
- The reported number of breakage related injuries for this 12 year period for all manufacturers and makes is 15.
- All of the injuries involve minor cuts (nicks) and scratches. One VOQ for a Nissan Maxima made the anomalous statement of the need for "medical attention" due to eye scratches.

Based on Kia's continued evaluation of this issue, what has now become extremely clear is that sunroof fracture events at worst result in minor injury events and do not create a substantial or unreasonable risk to motor vehicle safety regardless of their cause or frequency of occurrence.

Finally, Kia notes that the changeover from the 2011-2013 Sorento to the 2014 Sorento demonstrates that there is nothing about the 2011-2013 Sorento which places it outside the normal range of panoramic sunroof vehicles. That is, the 2014 Sorento sunroof is in a broad way very different than the 2011-2013 Sorento. The 2014 Sorento sunroof was designed, developed and manufactured by the Webasto Donghee joint venture and not Webasto Products North America utilizing a different engineering staff. The glass itself was manufactured by Hankuk Sekurit in Korea instead of Guardian in the U.S. The sunroof design for the 2014 Sorento has 3 panels instead of the 2 panels in the 2011-2013, and it has different dimensions, structures and edges. In spite of all of these comprehensive differences, the 2014 Sorento has already received 5 VOQs (there are 37 for the much longer period and number of vehicles with the 2011-2013) as well as significant numbers for Consumer Complaints (18), warranty and goodwill claims (23) and field reports (7). What seems likely is that Kia may simply be a leader in such incidents – regardless of the sunroof involved – in part because of thorough methods of reporting it uses.

**f. The reports included with this inquiry.**

The analysis for 13 of the VOQs included with this inquiry were previously submitted in response to PE13-035 dated January 10, 2014. The newly identified VOQs are attached. **See Tab H.**

Sincerely,

A handwritten signature in black ink, appearing to be 'J.S. (Jurassic) Park', written over a horizontal line.

J.S. (Jurassic) Park  
Executive Director, Product Liability &  
Regulatory Compliance  
Kia Motors America, Inc.

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## 2011 MY Vehicles.

1. VOQ No. 1055612, 12/15/2013 (VIN 5XYKU4A24BG [REDACTED], [REDACTED] 2011 MY Sorento

REAR SUN ROOF EXPLODED. TRAVELING ALONG I-4 ABOUT 55 MPH WHEN THERE WAS A LARGE GUN SHOT SOUND SO WE LOOKED AROUND FOR ANOTHER VEHICLE THAT MIGHT HAVE MADE THE NOISE BUT THERE WAS NO CAR WITHIN 50-60 YARDS BEHIND OR IN FRONT.

THEN WE HEARD SOMETHING RUMBLING ON ROOF WHICH WAS GLASS. LUCKILY THE ROOF WAS INTACT BUT THE VERY SIDES OF THE GLASS ROOF WERE BREAKING UP IN A LONG SLENDER LINE. NOW AFTER A FEW MILES GETTING HOME THE CENTER IS STARTING TO BREAK UP.

THE CAR HAD BEEN PARKED IN THE GARAGE FOR 7 WEEKS WHILE I WAS IN THE UK AND ONLY TOOK IT OUT OF GARAGE. I HAVE BEEN IN THE UK MOTOR TRADE 50 YEARS AND NEVER SEEN GLASS GIVE WAY LIKE THIS. IT APPEARS AS IF SOMEBODY TRIED TO PUSH THE TWO SIDES OF THE CAR INWARDS CAUSING THE ROOF TO EXPLODE. THERE IS NO OTHER DAMAGE AT ALL AND NO DEBRIS HIT MY ROOF. UPDATED 1/7/14\*CN UPDATED 01/09/14\*LJ UPDATED 01/09/14

### Analysis

Unusual and perhaps a unique report. Noise the driving force for the complaint. Rear glass incident and it remained intact. No injury and no assertion of any unsafe event. Customer did not contact Kia or dealer to assist in assessing this incident.

2. VOQ No. 10568629, 3/11/2014 (VIN 5XYKU4A21BG [REDACTED]) [REDACTED] 2011 MY Sorento

THE SUNROOF EXPLODED. MY HUSBAND DRIVING AT HIGHWAY SPEED WHEN SUNROOF MADE A LOUD BANG. LUCKILY THE SHADE WAS DRAWN AND PROTECTED HIM FROM FLYING GLASS. THE FLYING GLASS TOOK OUT THE ANTENA.

### Analysis

Customer contacted CA a month after the incident to obtain deductible after insurance company payment. No injury and no assertion of unsafe event. There has never been a report of an antenna being “taken out” before; antenna would have to be impacted by a

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large object to be ripped off of roof. Customer did not contact Kia or dealer to assist in assessing incident.

**3. VOQ No. 10583122, 4/16/2014 (VIN 5XYKW4A28BG [REDACTED]), [REDACTED] 2011 MY Sorento**

TL-THE CONTACT OWNS A 2011 KIA SORENTO. THE CONTACT STATE THAT THE SUNROOF EXPLODED WHILE HE DROVE AT 35 MPH THE FRACTURED GLASS FELL INTO THE VEHICLE AND THE SUNROOF FRONT BAR FELL ON THE CONTACT'S HEAD. THE CONTACT SUFFERED A CUT TO HIS SHOULDER. THE VEHICLE WAS NOT REPAIRED. THE MANUFACTURER WAS NOT MADE AWARE OF THE FAILURE. THE APPROXIMATE FAILURE AND CURRENT MILEAGE WAS 30,000. UPDATED 04-29-14 \*BF

### Analysis

Customer reported to CA that he heard a very loud sound and the front moveable glass fractured. Customer indicated that piece of sunroof metal frame contacted his shoulder; no medical attention. Vehicle inspected and repaired.

### 2012 MY Vehicles.

**1. VOQ No. 10555931, 12/12/2013 (VIN 5XYKU4A2XCG [REDACTED]) 2012 MY Sorento**

TL\* THE CONTACT OWNS A 2012 KIA SORENTO. THE CONTACT STATED THAT THE PANORAMIC MOON ROOF BECAME SHATTERED WHILE DRIVING APPROXIMATELY 65 MPH. THE VEHICLE WAS TAKEN TO THE DEALER FOR THE REPLACEMENT OF THE MOON ROOF. THE MANUFACTURER WAS MADE AWARE OF THE FAILURE. THE APPROXIMATE FAILURE MILEAGE WAS 40,000.

### Analysis

Rear stationary glass fracture. Loud noise first noticed. No injury.

**2. VOQ No. 10562516, 1/25/2014 (VIN 5XYKUDA24CG [REDACTED]) 2012 MY Sorento**

THE MOONROOF (STATIONARY SUNROOF THAT DOES NOT OPEN) OVER THE 2ND ROW SEAT EXPLODED SPONTANEOUSLY. THERE WAS NO IMPACT FROM A ROCK OR ANY OTHER DEBRIS. THERE WAS A LOUD EXPLOSION SOUND LIKE A GUNSHOT SOUND AND GLASS SHOT



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OUT THE TOP AND FELL DOWN INTO THE CAR. IT FRACTURED INTO THOUSANDS OF PIECES...UPDATED 04-29-14 \*BF

## Analysis

Rear stationary glass fracture. Loud noise prior to fracture. No injuries. Tempered glass performed as designed, breaking into small nuggets. History of storage of luggage on roof racks above glass raises question of prior glass damage.

### **3. VOQ No. 10563779, 2/3/2014 (VIN 5XYKWDA22CG [REDACTED]) 2012 MY Sorento**

THE POWER SUN ROOF BLEW OUT WHILE THE VEHICLE WAS PARKED OVERNIGHT. THOUSAND OF SMALL GLASS PIECES WERE SCATTERED IN AND OUTSIDE OF THE CAR. OUTSIDE FL TEMPERATURE WAS ABOUT 65 DEGREES.

## Analysis

Interesting stationary event but customer did not contact KMA to help evaluate. Temperature would not have stressed glass or vehicle. Tempered glass performed as designed, breaking into many small pieces.

### **VOQ No. 10593626, 4/18/ 2014 (No VIN), [REDACTED] 2012 MY Sorento**

WHILE DRIVING DOWN THE ROAD, THERE WAS A SOUND LIKE A GUNSHOT. WHEN I LOOKED BACK, I NOTICED THAT THE REAR SUNROOF HAD SHATTERED COMPLETELY. THERE WAS A BULGE IN THE GLASS GOING UPWARD LIKE THE GLASS EXPLODED, NOT IMPLoded AS IT WOULD IF SOMETHING STRUCK IT.

## Analysis

Loud noise reported. Tempered glass performed as designed breaking into many small pieces. No injury. Glass also moved upwards and out.

### **4. VOQ No. 10597677, 5/25/2014 (VIN 5XYKUDA22CG [REDACTED]) 2012 MY Sorento**

TL \* THE CONTACT OWNS A 2012 KIA SORENTO. WHILE DRIVING 35 MPH, THE SUN ROOF SHATTERED. THE VEHICLE WAS TOWED TO THE DEALER, BUT THE CAUSE OF FAILURE WAS UNDETERMINED. THE VEHICLE WAS REPAIRED AND THE MANUFACTURER WAS NOTIFIED. THE FAILURE MILEAGE WAS 20,127.

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### Analysis

Customer reported loud boom to CA. No injury.

5. VOQ No. 10619260, 8/5/2014 (VIN 5XYKWDA22CG [REDACTED]) 2012 MY Sorento

DRIVING ON HIGHWAY AT A SPEED OF 60 MPH. SUNROOF EXPLODED, OR SHATTERED, I SHOULD SAY. NO VEHICLES IN FRONT OF ME. NOTHING ABOVE ME. IN OTHER WORDS, I DON'T BELIEVE THAT THE SUNROOF WAS HIT BY ANY DEBRIS OR OBJECT. SIMPLY, OUT OF THE BLUE, SHATTERED.. UPDATED 08-20-14 \*BF

### Analysis

Loud noise. No injuries. Glass was pulled up and out of the vehicle due to speed.

6. VOQ No. 10626138, 8/18/2014 (VIN 5XYKWDA25CG [REDACTED]) 2012 MY Sorento

WHILE DRIVING OUR SUNROOF EXPLODED. THERE WAS NO OBJECT THAT HIT IT. IT JUST SPONTANEOUSLY SHATTERED. THE SUNROOF WAS CLOSED AT THE TIME BUT THE SUNROOF SLIDING SHADE WAS OPEN...UPDATED 08-26-14 \*BF UPDATED 8/29/2014 \*JS

### Analysis

Customer claimed to CA that his daughter, 11, received minor cuts and scratches. Kia requested photos. Not provided. Customer later claimed to dealer that the sunroof was warped. Follow up call by CA to investigate not responded to.

7. VOQ No. 10632804, 8/28/2014 (VIN 5XYKWDA22CG [REDACTED]) 2012 MY Sorento

MY WIFE AND I WERE DRIVING ON I-85 NORTH OUTSIDE OF DURHAM, NC. THERE WERE NO CARS AROUND OR IN FRONT OF US FOR AT LEAST 1/4 MILE. THERE WAS A LOUD BANG AND THEN WIND NOISE. THE SUNROOF HAD EXPLODED FOR NO REASON.

### Analysis

This is representative of many new VOQs which assert no vehicles anywhere in their vicinity, this time on busy I-85 in Durham. Loud noise reported before fracture. No injury.

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8. VOQ No. 10649446, 10/18/2014 (VIN 5XYKWDA2XCG [REDACTED]) 2012  
MY Sorento

ON FRIDAY, OCT 17, 2014 I DROVE OVER 600 MILES WITH MY SON TO AN EVENT AND RETURNED HOME. THE NEXT MORNING I DISCOVERED THE SUNROOF WAS SHATTERED. THE CAR WAS PARKED NEXT TO OUR HOUSE IN OUR DRIVEWAY AT THE TIME. IT WAS VERY STRANGE AS NOTHING HAD FALLEN ON THE CAR AND THERE APPEARED TO BE NO CAUSE. WHEN I CALLED THE KIA DEALERSHIP THEY INITIALLY DENIED KNOWING OF ANY SIMILAR PROBLEMS WITH SUNROOFS SHATTERING. AFTER I GOOGLE - RESEARCHED IT AND TALKED TO THEM ON MONDAY, OCT 20, THEY THEN SAID THEY WOULD NOT PAY FOR IT AND I SHOULD JUST SUBMIT IT AS A CLAIM TO MY INSURANCE COMPANY. I HAVE 100 % GLASS COVERAGE BUT THIS SEEMS LIKE A DEFECT AND COULD HAVE BEEN A BIG PROBLEM IF IT HAD HAPPENED WHEN MY SON & I WERE DRIVING.

**Analysis**

Stationary event. No record of this customer contacting Kia. No injury or risk. October time makes it unlikely that temperature had stressed glass or roof.

**2013MY Vehicles.**

1. VOQ No. 10562460, 1/31/2014 (VIN 5XYKWDA27DG [REDACTED]) 2013 MY  
Sorento

DRIVING AT @ 70 MPH ON SMOOTH INTERSTATE HIGHWAY WITH VERY LIGHT TRAFFIC. HEARD A VERY LOUD BANG AND THEN THE CRACKLING OF GLASS. REACHED BACK TO FEEL THE PANORAMIC SUNROOF AND IT MOVED. PULLED OFF AT NEXT EXIT TO SEE THAT THE ENTIRE ROOF HAD SHATTERED WITH SEVERE CRACKING AROUND THE SIDES AND BACK BUT NO VISIBLE SIGN OF DAMAGE FROM A FOREIGN OBJECT. WEATHER WAS CLEAR AND 34F WITH CLIMATE CONTROL SET AT 72F. AT THE TIME OF THE INCIDENT THERE WERE NO VEHICLES WITHIN .25 MILES IN FRONT OF ME AND NO OVERPASSES AT THE LOCATION.  
..UPDATED 04-29-14 \*BF

**Analysis**

Loud noise, but unusually clear report of tempered glass remaining intact post-noise, followed by slow break-up. No injury or safety risk. Note further consistent pattern appearing in many newer VOQs of customer “learning” – presumably after reading internet sites - to report absence of other traffic. Customer never contacted Kia.

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**2. VOQ No. 10564555, 2/15/2014 (VIN 5XYKUDA25DG [REDACTED]) 2013 MY Sorento**

ON 2/15/2014 MY WIFE AND I WERE DRIVING FROM ELKO, NV TO SPRING CREEK, NV AT APPROXIMATELY 50 MPH WHEN THE SUNROOF IMPLoded. IT WAS A CLEAR DAY WITH NO RAIL OR HAIL. THE SUNROOF DID NOT HAVE PRIOR DAMAGE AND THERE WAS NO INDICATION OF IT GETTING HIT BY AN EXTERNAL OBJECT; THERE WAS NO IMPACT SOUND AND NO FOREIGN OBJECTS IN THE CAR. THE GLASS SIMPLY IMPLoded AND FELL NOT THE VEHICLE ON TOP OF MY WIFE AND I, ALONG WITH THE FRONT AND REAR BARS OF THE SUNROOF. KIA ROADSIDE ASSISTANCE TOWED THE VEHICLE TO A KIA DEALERSHIP IN SALT LAKE CITY, UT.

**Analysis**

CA report stated loud noise and sufficient speed to cause uplift of glass, but claimed the glass fell on him and his wife. Customer reported very minor cuts but then said that nobody was really hurt and said additionally that he had vacuumed all of the glass from the car.

**3. VOQ No. 10567351, 11/4/2013 (VIN 5XYKUDA27DG [REDACTED]) 2013 MY Sorento**

CLEAR DAY, FOUR LANE HIGHWAY (97-WASHINGTON STATE) MINIMAL TRAFFIC, THE SUNROOF SUDDENLY EXPLODED WITHOUT ANY EXTERNAL CAUSE. FLYING GLASS, NO INJURIES, BUT FRAYED NERVES. SUNROOF NOT ON THE FAILED COMPONENT LIST. ACTUALLY A POTENTIALLY VERY DANGEROUS SITUATION.

**Analysis**

Customer contacted by CA on 11/6/2013. Fracture occurred while traveling 50 mph close to semi-trucks. Loud noise reported. VOQ not reported for 4 months. No injuries.

**4. VOQ No. 10572959, 3/14/2014 (VIN 5XYKWDA29DG [REDACTED]) 2013 MY Sorento**

DRIVING DOWN ROUTE 62 IN ALLIANCE OHIO 44601 ONLY GOING ABOUT 30 35 MPH IT SOUNDED LIKE A GUN SHOT AND LOOK BACK AND SEEN THE PANORAMIC WINDOW WAS SHATTERD NO SIGNS OF ANYTHING HITTING IT LIGHT TRAFFIC

**Analysis**

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Loud noise while driving 30-35mph. No injuries.

**5. VOQ No. 10575487, 3/29/2014 (VIN 5XYKW4A27DG [REDACTED]) 2013 MY Sorento**

DRIVING DOWN THE ROAD AND A LOUD POP OCCURRED AND THE REAR SUNROOF HAD SHATTERED. NO OTHER CARS OR PEOPLE WERE AROUND. STOPPED AND CHECKED THE GROUND WHERE IT HAPPENED AND FOUND NO OBJECTS THAT WOULD HAVE CAUSED SUNROOF TO SHATTER. SUNROOF APPEARS TO HAVE SHATTERED WITHOUT EXTERNAL CONTACT OF ANY KIND.

**Analysis**

Again noteworthy for VOQ complaints to have learned all of the things to say to refute possibility of an external object. Even converts what is uniformly reported as a loud noise to a quieter “loud pop”. No injuries. No communication with Kia.

**6. VOQ No. 10584650, 4/21/2014 (VIN 5XYKWDA26DG [REDACTED]) 2013 MY Sorento**

TL\* THE CONTACT OWNS A 2013 KIA SORENTO. THE CONTACT STATED THAT WHILE HE DROVE AT 65 MPH, THE SUNROOF EXPLODED. THE CONTACT SUFFERED CUTS TO HIS HANDS. THE FRONT PASSENGER SUFFERED CUTS ON THE BACK AND HANDS. THE PASSENGER IN THE REAR SUFFERED CUTS TO THE HANDS. THE VEHICLE WAS TAKEN TO THE DEALER WHERE THE FAILURE WAS NOT DIAGNOSED. THE VEHICLE WAS NOT REPAIRED. THE MANUFACTURER WAS MADE AWARE OF THE FAILURE. THE FAILURE AND CURRENT MILEAGE WAS 26,700.

**Analysis**

65mph speed. Loud noise reported. Significantly, glass dropped in spite of high speed, and landed on all 3 occupants with cuts on the backs of hands. On 4/23/3014 FTR inspected and identified scratches and chips in the front windshield and the rear stationary glass. FTR concluded substantial evidence of foreign object impact.

**7. VOQ No. 10599023, 6/17/2014 (5XYKWDA32DG [REDACTED]) 2013 MY Sorento**

SUN ROOF GLASS AT REAR EXPLODED AT A STOP LIGHT. THE GLASS IS PUSHED UP AND SHATTERED AND THERE ARE NO OBJECTS FOUND THAT CAUSED THE GLASS TO BREAK. IT APPEARS TO BE A DEFECTIVE DESIGN.

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## Analysis

Report is hard to reconcile with prior events. Being stopped at a stop light and having the glass pushed up is not logical, since the aerodynamics are not present to support this. However, it is clear that after the “shattering”, the tempered glass was still intact in order for the customer to be able to see that it was pushed up. No injuries.

**8. VOQ No. 10608047, 7/3/2014 (VIN 5XYKWDA20D6 [REDACTED] 2013 MY Sorento**

WHILE DRIVING ON HIGHWAY #20 EAST IN QUEBEC CANADA THE FRONT PART OF THE PANORAMIC ROOF SHATTERED IN MILLIONS OF PIECES. UPDATED 08-20-14 \*BF UPDATED 09/3/2014 \*JS

## Analysis

Customer contacted CA on 6/30/2014 to seek reimbursement for repair, which was denied and he then contacted NHTSA. Customer also told CA the sunroof shade was closed, but he still claimed injury, but then denied medical treatment. Tempered glass performed as designed, breaking into many small pieces.

### **2014 MY Vehicles.**

**1. VOQ No. 10551689, 11/10/2013 (VIN 5XYKW4A75EG [REDACTED] 2014 MY Sorento**

SUNROOF SHATTERED WHILE DRIVING ON I-35 NORTH. WE HAVE KIDS ON BOARD WHILE THAT HAPPENED. IT SOUNDED LIKE A GUN FIRE WHEN IT HAPPENS. WE CAN PROVIDE YOU THE PHOTOS.

## Analysis

Interstate speed. Loud noise reported. No injury.

**2. VOQ No. 10564638, 2/17/2014 (VIN 5XYKW4A78EG [REDACTED] 2014 MY Sorento**

WE WERE DRIVING ON INTERSTATE 540 N, 70 MPH, NORMAL DRIVING CONDITIONS, AND LIGHT TRAFFIC WHEN THE SUNROOF EXPLODED. IT SOUNDED LIKE WE HAD BEEN HIT BY ANOTHER VEHICLE OR SOMETYPE OF EXPLOSION. I IMMEDIATELY LOOKED IN THE REAR VIEW MIRROR TO SEE A LARGE PIECE OF DARK GLASS FLYING OFF FROM THE TOP OF MY

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CAR. THE INSIDE SHADE WAS CLOSED, NO GLASS ENTERED INSIDE THE VEHICLE. WE PULLED OFF AT THE ROAD AND DISCOVERED A LARGE HOLE IN THE MIDDLE OF THE FIRST SUNROOF. THE REMAINING PORTION OF THE FIRST SUNROOF IS SHATTERED. WE WERE NOT FOLLOWING A VEHICLE, I DO NOT BELIEVE THIS WAS CAUSED BY A ROCK OR ROAD DEBRIS. THE OTHER PARTS OF THE GLASS ROOF SEEM OK, THIS WAS JUST THE SUNROOF THAT IS OVER THE FRONT SEATS. \*TR

### Analysis

Driving 70 mph. Loud noise reported. Portion of front sunroof aerodynamically lifted up. No glass in passenger compartment. No injuries.

#### **3. VOQ No. 10579474, 3/15/2014 (VIN 5XYKWDA73EG [REDACTED] 2014 MY Sorento**

WHILE DRIVING ON THE HIGHWAY WITH NO OTHER CARS NEAR, THE GLASS SUNROOF ABOVE THE DRIVERS HEAD EXPLODED LEAVING A BOWLING BALL SIZED HOLE IN THE MIDDLE OF THE GLASS TOP. NOTHING HIT THE TOP, IT EXPLODED OUTWARD WITH FORCE....UPDATED 04-30-14 \*BF UPDATED 10/1/2014 \*JS

### Analysis

Highway speed. Loud noise reported. Part of front sunroof lifted up aerodynamically. No injuries.

#### **4. VOQ No. 10598336, 6/14/2014 (VIN 5XYKWDA7XEG [REDACTED] 2014 MY Sorento**

WHILE DRIVING ON THE HIGHWAY GOING APPROXIMATELY 70 MPH THE FRONT PORTION OF OUR 2014 KIA SORENTO SUNROOF JUST EXPLODED, IT SOUNDED LIKE A SHOTGUN WENT OF IN THE CAR, LUCKILY WE HAD THE INTERIOR SUN SHADE CLOSED WHICH KEPT THE GLASS FROM COMING INSIDE...UPDATED 07/01/14 \*BF THE CONSUMER NO LONGER OWNS THE VEHICLE. UPDATED 07/03/14

### Analysis

Driving 70mph. Loud noise reported. Fracture, no glass entered passenger compartment. No risk of injury or injury.

EA14-002 Sorento Panorama Sunroof –Response to Request No.  
12(f) (Tab H)

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5. **VOQ No. 10615682, 7/23/2014 (VIN 5XYKWDA77EG [REDACTED])**  
**2014 MY Sorento**

WAS DRIVING VEHICLE ON FREEWAY WHEN SUNROOF SPONTANEOUSLY SHATTERED, CAUSING A HUGE HOLE & GLASS TO RAIN DOWN INTO CAR. NO ROCK OR ROADWAY DEBRIS WAS OBSERVED TO BE A FACTOR.

**Analysis**

Driving freeway speeds with big rigs. Due to speed involved, glass in front sunroof would have been lifted out aerodynamically. Also, customer reported to CA 5 days later that the shade was closed and thus no glass could have entered passenger compartment. No injuries.