



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

**E-MAIL AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Steven M. Kenner
Global Director
Automotive Safety Office
Ford Motor Company
330 Town Center Drive, Suite 400
Dearborn, MI 48126

January 28, 2014

NVS-221AFi
OA-114-140115A

Re: Model Year 2013 and 2014 Push-Button Start Vehicles

Dear Mr. Kenner:

The Office of Vehicle Safety Compliance (“OVSC”) of the National Highway Traffic Safety Administration (“NHTSA”) investigated vehicles manufactured by Ford Motor Company to the requirements of Federal Motor Vehicle Safety Standard (“FMVSS”) No. 114, *Theft Protection and Rollaway Prevention*, found at 49 CFR § 571.114. Testing took place at Koons of Silver Spring in Kilver Spring, Maryland on August 28, 2013.

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MY	Make	Model
2013	Ford	Explorer
2013	Ford	Fusion
2013	Ford	Taurus
2013	Lincoln	MKX
2013	Lincoln	MKZ
2014	Ford	Escape
2014	Ford	Flex

OVSC performed tests using scenarios developed according to how we believed consumers could use vehicles equipped with KCCDs, focusing on Sections 5.1 and 5.2 of 49 CFR § 571.114. Since these systems operate differently depending on the manufacturer and, in some cases, the model, we ask that you review the results we obtained. In answering the items

below, include any differences noted should your company conduct similar tests and the possible reasons for those differences.

Unless otherwise stated in the text, the following definitions apply to the information request set forth below:

- **Manufacturer:** “Ford” “you”, or “your” means Ford Motor Company including all of its divisions, subsidiaries and affiliated enterprises, including with respect to any of the foregoing within or outside of the United States, any parent corporation, any subsidiary or affiliate, or any subsidiary or affiliate of any parent corporation, and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Ford Motor Company.
- **Document(s):** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative findings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, CD-ROMs, compact disks, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by you, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document that contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, “document(s)” also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or

photograph originally produced in color must be provided in color. The term “document” includes all documents described above whether verified by the manufacturer or not.

- **Consumer Complaint:** A “consumer complaint” is defined as a communication of any kind made by a consumer (or other person) to or with a manufacturer addressed to the company, an officer thereof, or an entity thereof that handles consumer matters, a manufacturer website that receives consumer complaints, a manufacturer electronic mail system that receives such information at the corporate level, or that are otherwise received by a unit within the manufacturer that receives consumer inquiries or complaints, including telephonic complaints, expressing dissatisfaction with a product, or relating the unsatisfactory performance of a product, or any actual or potential defect in a product, or any even that allegedly was caused by any actual or potential defect in a product.
- **Effective Range:** “Effective Range” means the maximum distance the Key Code Carrying Device can be from the Subject Vehicle where the vehicle is able to recognize the electronic key code associated with that particular vehicle.
- **Electronic Code:** “Electronic Code” shall have the meaning used in the definition of “key” in 49 CFR § 571.114, S.4.
- **Key:** “Key” means the electronic code which, when inserted into the starting system by electronic means, enables the vehicle operator to activate the engine or motor [See 49 CFR § 571.114, S.4].
- **Key Code Carrying Device (KCCD):** “Key Code Carrying Device” means the physical device which is capable of electronically transmitting the key to the vehicle starting system without physical connection, other than its presence in the vehicle, between the device and the vehicle (i.e. the key fob).
- **Starting System:** “Starting System” means the vehicle system used in conjunction with the key code and the engine/motor start control to activate the engine, motor, or other system which provides propulsion to the motor vehicle.
- **Subject Vehicles:** “Subject Vehicles” means the vehicles listed after the first paragraph of this letter.
- “Starting the vehicle’s motor” means the driver uses the motor start control to turn on power is “on” to the motor, resulting in input to the vehicle’s wheels and vehicle movement as a result of the driver applying the accelerator pedal.
- “Stopping the vehicle’s engine or motor” means the driver uses the engine/motor stop control to turn off power to the engine or motor and no input to the vehicle’s wheels or vehicle movement will result from the driver application of the accelerator pedal.
- The term “you” or “your” refers to Ford.

- The singular includes the plural; the plural includes the singular. The masculine gender includes the feminine and neutral genders; and the neutral gender includes the masculine and feminine genders. “And” as well as “or” shall be construed either disjunctively or conjunctively, to bring within the scope of this information request all responses that might otherwise be construed to be outside its scope. “Each” shall be construed to include “every” and “every” shall be construed to include “each”. “Any” shall be construed to include “all” and “all” shall be construed to include “any”. The use of a verb in any tense shall be construed as the use of the verb in a past or present tense, whenever necessary to bring within the scope of the document request all responses which might otherwise be construed to be outside its scope.
- The term “relate to” or “relating to” means constituting, comprising, containing, setting forth, showing, disclosing, describing, explaining, summarizing, concerning, or referring to, directly or indirectly.
- To “identify” or “state the identity of” a natural person means to state his/her full name, title, office, present work address and telephone number, and the name, address and telephone number of his/her present or last known employer, if any. Once an individual has been so identified, he or she may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- To “identify” or “state the identity of” a person other than a natural person means to state its full name and the present or last known address and telephone number of its headquarters. Once such a “person” has been so identified, it may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- Other Terms: To the extent that they are used in these information requests, the terms “claim,” “consumer complaint,” “dealer field report,” “field report,” “make,” “model,” “model year,” “notice,” “property damage,” “property damage claim,” “type,” “warranty,” “warranty adjustment,” and “warranty claim,” whether used in singular or plural form, have the same meaning as found in 49 CFR 579.4.

Please respond to the following requests. Please repeat the applicable request verbatim above each response. Identify the source of the information and indicate the last date the information was fathered. Answer each question for each of the Subject Vehicles as well as any other MY 2013-2014 vehicles identified by Ford that have keyless ignition systems comparable to those in any of the Subject Vehicles. If any vehicles share the same starting system, they may be grouped together when responding. When grouping vehicles for responses please list all vehicles (by model year, make, and model) that each response is for.

1. For each of the subject vehicles, state the date when a starting system that allows the use of an electronic key fob (Key Code Carrying Device) was first introduced in production and state the number of vehicles manufactured by or for your company with that starting

system for sale in the U.S. from that date through the date of your response to this letter, broken down by model year.

2. Separately, for each of the Subject Vehicles, explain the operation of the starting system. Include in your response, the location and operation of the key code carrying device and the engine/motor start/stop device.

3. Describe in detail how the Subject Vehicles' engine/motor is started. Include in your response where the electronic key code is sent (i.e. immobilizer or engine control unit ("ECU")), the path the electronic key code takes to enable the driver to start the engine/motor (include a diagram showing the components and how they "connect" to each other), at what point the electronic key code is considered inserted into the starting system, and what conditions need to remain for the electronic key code to remain inserted.
 - a. If the driver remained present in the vehicle, but the KCCD is removed from the vehicle after the vehicle's engine/motor is stopped, can the engine/motor be restarted using the original electronic key code described in item 3 above? If your response is yes, for what period of time, and/or for what number of attempts is this possible?

4. Describe in detail how the Subject Vehicles' engine/motor is stopped or turned off. Include in your response, how hard and long the driver must press the start/stop button, to which device the code or other electrical signal is sent (i.e., immobilizer or engine control unit ("ECU")), and which devices are turned off or deactivated by the ECU (i.e., starter, fuel pump, fuel injection system, etc.). Specify when exactly those devices are turned off or deactivated (i.e. after the engine/motor stop control is pressed to turn off the engine/motor, after the driver's door is opened, etc.)
 - a. Describe any operating conditions during which the driver cannot stop or turn off the engine/motor by using the stop control. These conditions may include, for example, the vehicle's transmission is not in "park" or the vehicle's speed is almost zero mph (or less than a certain speed).

5. Separately for each of the Subject Vehicles, describe how the starting system operates in the following scenarios referencing the descriptions provided in your response to item 1. In each scenario, indicate when the electronic key code is first present in the Subject Vehicles, when it is recognized by the Subject Vehicles. In each scenario, describe when it is deactivated (engine/motor can no longer be started), and when it is purged from the Subject Vehicles, including the number of seconds it remains activated, if at all, after the driver turns the starting system off. In addition, in each scenario below, identify all audible and/or visual alerts made by the Subject Vehicles, specifically stating at what point each alert is made, what event triggered each alert, what event or factor each alert is

intended to warn the driver of, and the length/duration (audible) or location/wording (visual) of each alert:

- a) The driver turns the Subject Vehicle's engine/motor on while the transmission control is in the "park" position. The Subject Vehicle's ignition is turned off. The driver exits the vehicle with the key code carrying device on his person and moves outside of the effective range.
- b) The driver turns the Subject Vehicle's engine/motor on and places the transmission in "drive". The Subject Vehicle is then turned off. The driver exits the Subject Vehicle leaving the key code carrying device in the Subject Vehicle.
- c) The driver turns the Subject Vehicle's engine/motor on and places the transmission in "drive". The Subject Vehicle's engine/motor is then turned off with the transmission still in "drive". One minute elapses, after which the driver opens the driver's door and exits the Subject Vehicle, taking the key code carrying device with him outside of the effective range.

Provide responses for the following questions if they have not been previously answered. If the question has been previously answered, identify specifically, by question number and by line, where the response was previously provided:

6. Describe the circumstances under which the electronic code is purged or removed from the Subject Vehicles and/or is no longer recognized by the vehicle. Include in your response, where the key code carrying device must be located in terms of distance from the vehicle and how much time must have elapsed after the vehicle's engine/motor is turned off in order for the electronic key code to be purged or removed from the Subject Vehicles' memory.
7. What is the maximum effective range of the key code carrying device allowed for the electronic key code to be recognized by the Subject Vehicles? Explain the Subject Vehicles' response to the electronic code when they key code carrying device is moved beyond the maximum effective range.
8. Produce a copy of Ford's complete test procedure and test report concerning FMVSS No. 114 applicable to the Subject Vehicles. Produce all results of Ford's testing of the Subject Vehicles related to FMVSS No. 114 as well as copies of Ford's internal sign off sheet(s) indicating compliance with FMVSS No. 114. Produce a copy of Ford's complete test procedure concerning FMVSS No. 114 for the Subject Vehicles as it was provided to the manufacturer of the Subject Vehicles' starting system.

9. Separately for each of the Subject Vehicles, state the number of each of the following received by or of which Ford is otherwise aware, which relate to or may relate to the starting system in the Subject Vehicles:
- a) Consumer complaints, including those from fleet operators;
 - b) Field reports, including, but not limited to field technical reports and dealer field reports;
 - c) Reports involving a crash, injury, or fatality;
 - d) Property damage claims;
 - e) Warrantee claims;
 - f) Third-party arbitration proceedings where Ford is or was a party to the arbitration;
 - g) Lawsuits, both pending and closed, in which Ford is or was defendant or codefendant; and,
 - h) Vehicle Owner Questionnaires (VOQs) provided to the National Highway Traffic Safety Administration (U.S.) and received or otherwise obtained by Ford.

If Ford cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Ford does not submit one or more requested documents or items of information in response to this information request, Ford must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

The information requests set forth above are sent to Ford pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to require a manufacturer to make reports to NHTSA. It constitutes a new request for a report. A timely and complete response by Ford is required. Ford's failure to respond promptly and fully to such a request could subject Ford to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. Under 49 U.S.C. § 30165(a)(3), any person who violates 49 U. S. C. § 30166 is liable for penalties up to and including \$7,000 per day for failure to provide requested information. The maximum for a related series of violations is currently \$17,350,000. 49 C.F.R. § 578.6(a)(3). Other remedies and sanctions are available as well.

Additionally, we are requesting information to improve our understanding of the design standards and safety strategies that your company has in place to address the potential safety risks that may be present with push button start/stop vehicles. Your response to the following questions is optional:

10. What safety information does Ford request its dealership personnel to provide to customers purchasing a new or used vehicle with push button start/stop?
11. What safety information does Ford directly provide to a customer purchasing a new or used vehicle with push button start/stop, and through what means (i.e., owner's manual) is this information provided or communicated?

The address for mail or express delivery is: National Highway Traffic Safety Administration, Office of Vehicle Safety Compliance (NVS-221), Room W43-496, 1200 New Jersey Avenue SE, Washington, DC 20590. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to OA-114-140115A in Ford's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. Ford's response to this IR is due no later than 30 calendar days from the date indicated on this letter. If Ford finds that it is unable to provide all of the information requested within the time allotted, Ford must request an extension from Amina Fisher of my staff at (202) 366-5307 no later than five (5) business days before the response due date. If Ford is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Ford then has available, even if an extension has been granted.

If you have any technical questions concerning this matter, please call Amina Fisher of my staff at (202) 366-5307. Your cooperation and assistance is greatly appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Harry Thompson" with a flourish at the end. Below the signature, the text "for H.T." is written in a smaller, less legible hand.

Harry Thompson
Chief, Crash Avoidance Division
Office of Vehicle Safety Compliance

Enclosure – Data Sheets from field inspections

Vehicle 2013 Ford Explorer

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 28 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Ford
 VEHICLE MODEL Explorer
 VIN 1FMSK7F97DGA44391

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>3 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Shift to Park</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location: <u>cluster</u>
Exterior	<u>NONE</u> dB level: Duration:	Wording: <u>Shift to Park</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Ford Explorer

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: <i>65 dB</i> Duration: <i>continuous</i>	Location: <i>cluster</i>
Exterior	dB level: <i>NONE</i> Duration: <i>NONE</i>	Wording: <i>Shift to Park</i>

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Ford Explorer

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	<i>NONE</i>
Duration:			
Exterior	<i>NONE</i>		
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	<i>cluster</i>
dB level:	<i>56 dB</i>	Wording:	<i>No Key Detected</i>
Duration:	<i>1 sec</i>		
Exterior			
dB level:			
Duration:	<i>NONE</i>		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Ford Fusion

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 28 13
VEHICLE MODEL YEAR 2013
VEHICLE MAKE Ford
VEHICLE MODEL Fusion Energi
VIN 3FA6PDSUODR246774

Automatic transmission (confirm) YES NO
Activation of starting system (include key type)

proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>61 dB</u> Duration: <u>2 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>Transmission not in Park</u>

If an audible alert sounds does the radio volume change?
 Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location:
Exterior	<u>NONE</u>	Wording: <u>NONE</u>
	dB level: Duration:	

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

		AUDIBLE ¹	VISUAL
Interior	dB level: <i>61 dB</i>		Location: <i>cluster</i> Wording: <i>Transmission not in Park</i>
	Duration: <i>continuous</i>		
Exterior	dB level: <i>NDWE</i>		
	Duration: <i>NDWE</i>		

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES *Key is not removed from the starting system until the transmission is shifted to P (can always be restarted until then)*

Vehicle 2013 Ford Fusion

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: 61 dB Duration: continuous until door opened then closed	Location: cluster
Exterior	dB level: NONE Duration: NONE	Wording: Doorajar

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: 61 dB Duration: continuous until door opened then closed	Location: cluster
Exterior	dB level: 79 dB Duration: 2 sec	Wording: No Key Detected

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Ford Taurus

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 05 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Ford
 VEHICLE MODEL Taurus
 VIN 1FAHP2F81D6R03554 C20130209

Automatic transmission (confirm) YES NO
 Activation of starting system (include key type)

proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE
no auto shift to park feature described

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>47-50 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: Duration: <u>NONE</u>	Wording: <u>Shift to Park</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location:
Exterior	<u>NONE</u> dB level: Duration:	Wording: <u>NONE</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Ford Taurus

- 6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated. *w/ transmission not in Park*

	AUDIBLE ¹	VISUAL
Interior	dB level: 47-50 dB Duration: continuous	Location: cluster
Exterior	dB level: <i>until driver exits vehicle</i> Duration: NONE	Wording: Shift to Park

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES *same 41 chime alert for door ajar as for what seems to be Shift to Park alert*

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Lincoln MKX

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 28 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Lincoln
 VEHICLE MODEL MKX
 VIN 2LM0J8JK9DBL26140

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

	AUDIBLE ¹	VISUAL
Interior	dB level: <u>48 dB</u> Duration: <u>< 1 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Shift to Park</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- *electronic key code appears to still be in vehicle*
 (Complete 6.1)

NO- *electronic key code does not appear to still be in the vehicle*
 (Complete 6.1 - 8)

	AUDIBLE ¹	VISUAL
Interior	dB level: <u>NONE</u> Duration:	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Shift to Park</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Lincoln MKX

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

AUDIBLE ¹		VISUAL
Interior	dB level: <i>48 dB</i> Duration: <i>continuous</i>	Location: <i>cluster</i>
Exterior	dB level: <i>NONE</i> Duration:	Wording: <i>Shift to Park</i>

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Lincoln MKX

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level:	NONE	Location: cluster
Duration:		
Exterior		Wording: Engine is on
dB level:	NONE	→ went away after driver door
Duration:		(appeared when door opened) closed

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level:	NONE	Location: cluster
Duration:		
Exterior		Wording: Engine is on
dB level:	72 dB	No Key Detected
Duration:	2 horn beeps	

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Lincoln MKZ

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 28 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Lincoln
 VEHICLE MODEL MKZ
 VIN 3LN6L2GK8DR817657

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob
push button ★ gear selection controls are push buttons

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

When the ignition is switched off, the transmission automatically selects the Park position

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>68 dB</u> Duration: <u>1 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Transmission not in Park</u> <u>Restart now or key is needed</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>61 dB</u> Duration: <u>< 1 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>No Key Detected</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Lincoln MKZ

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: 61 dB Duration: 1 sec	Location: cluster
Exterior	dB level: NONE Duration:	Wording: No Key Detected

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES after the "Transmission not in Park" message appeared the vehicle's transmission automatically shifted to Park

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Lincoln MKZ

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location: <i>cluster</i>
Exterior	<i>NOISE</i> dB level: Duration:	Wording: <i>Engine is on</i>

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: Duration: <i>NOISE</i>	Location: <i>cluster</i>
Exterior	dB level: <i>80 dB</i> Duration: <i>5 sec</i>	Wording: <i>Engine is on</i> <i>No Key Detected</i>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Ford Escape

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 28 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Ford
 VEHICLE MODEL Escape
 VIN 1FMCU0HX1DUC52319

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>50 dB</u> Duration: <u>3 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Transmission not in Park</u> <u>Select P</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location: <u>cluster</u>
Exterior	<u>NONE</u> dB level: Duration:	Wording: <u>Transmission not in Park</u> <u>Select P</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Ford Escape

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

AUDIBLE ¹		VISUAL
Interior	dB level: <i>50 dB</i> Duration: <i>continuous</i>	Location: <i>cluster</i>
Exterior	dB level: <i>NONE</i> Duration:	Wording: <i>Transmission not in Park</i> <i>Select P</i>

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Ford Escape

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	NONE
Duration:			
Exterior	NONE		
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	cluster
dB level:	61 dB → started once driver door opened then closed	Wording:	Ford KeyFree Key not in Vehicle
Duration:	1 sec		
Exterior			
dB level:	76 dB		
Duration:	2 sec		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2014 Ford Flex

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 28 13
 VEHICLE MODEL YEAR 2014
 VEHICLE MAKE Ford
 VEHICLE MODEL Flex
 VIN 2FMHK6DT1EBD07490

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>60 dB</u> Duration: <u>3sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Transmission not in Park</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location: <u>cluster</u>
Exterior	<u>NONE</u> dB level: Duration:	Wording: <u>Transmission not in Park</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2014 Ford Flex

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

AUDIBLE ¹		VISUAL
Interior	58	
dB level:	58 dB	Location: cluster
Duration:	3sec	
Exterior		Wording: Transmission not in Park
dB level:	79 dB	No Key Detected
Duration:	2 sec	

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2014 Ford Flex

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: 58 dB Duration: 2 sec	Location: Wording: NONE
Exterior	dB level: Duration: NONE	

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: 58 dB Duration: 2 sec	Location: cluster Wording: No Key Detected
Exterior	dB level: 79 dB Duration: 2 sec	

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

**E-MAIL AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Carmen Benavides
Director
Product Investigations and Safety Regulations
General Motors LLC
Mail Code 480-210-2V1
30001 Van Dyke
Warren, MI 48090-9020

January 28, 2014

NVS-221AFi
OA-114-140115B

Re: Model Year 2013 and 2014 Push-Button Start Vehicles

Dear M. Benavides:

The Office of Vehicle Safety Compliance (“OVSC”) of the National Highway Traffic Safety Administration (“NHTSA”) investigated vehicles manufactured by General Motors to the requirements of Federal Motor Vehicle Safety Standard (“FMVSS”) No. 114, *Theft Protection and Rollaway Prevention*, found at 49 CFR § 571.114. Testing took place at Fitz Auto Mall, in Rockville, Maryland on September 5, 2013.

MY	Make	Model
2013	Buick	Lacrosse
2013	Buick	Verano
2013	Cadillac	SRX
2014	Buick	Regal
2014	Cadillac	XTS

OVSC performed tests using scenarios developed according to how we believed consumers could use vehicles equipped with KCCDs, focusing on Sections 5.1 and 5.2 of 49 CFR § 571.114. Since these systems operate differently depending on the manufacturer and, in some cases, the model, we ask that you review the results we obtained. In answering the items below, include any differences noted should your company conduct similar tests and the possible reasons for those differences.

Unless otherwise stated in the text, the following definitions apply to the information request set forth below:

- **Manufacturer:** “General Motors” “you”, or “your” means General Motors including all of its divisions, subsidiaries and affiliated enterprises, including with respect to any of the foregoing within or outside of the United States, any parent corporation, any subsidiary or affiliate, or any subsidiary or affiliate of any parent corporation, and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of General Motors.
- **Document(s):** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative findings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, CD-ROMs, compact disks, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by you, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document that contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, “document(s)” also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. The term “document” includes all documents described above whether verified by the manufacturer or not.
- **Consumer Complaint:** A “consumer complaint” is defined as a communication of any kind made by a consumer (or other person) to or with a manufacturer addressed to the

company, an officer thereof, or an entity thereof that handles consumer matters, a manufacturer website that receives consumer complaints, a manufacturer electronic mail system that receives such information at the corporate level, or that are otherwise received by a unit within the manufacturer that receives consumer inquiries or complaints, including telephonic complaints, expressing dissatisfaction with a product, or relating the unsatisfactory performance of a product, or any actual or potential defect in a product, or any even that allegedly was caused by any actual or potential defect in a product.

- **Effective Range:** “Effective Range” means the maximum distance the Key Code Carrying Device can be from the Subject Vehicle where the vehicle is able to recognize the electronic key code associated with that particular vehicle.
- **Electronic Code:** “Electronic Code” shall have the meaning used in the definition of “key” in 49 CFR § 571.114, S.4.
- **Key:** “Key” means the electronic code which, when inserted into the starting system by electronic means, enables the vehicle operator to activate the engine or motor [See 49 CFR § 571.114, S.4].
- **Key Code Carrying Device (KCCD):** “Key Code Carrying Device” means the physical device which is capable of electronically transmitting the key to the vehicle starting system without physical connection, other than its presence in the vehicle, between the device and the vehicle (i.e. the key fob).
- **Starting System:** “Starting System” means the vehicle system used in conjunction with the key code and the engine/motor start control to activate the engine, motor, or other system which provides propulsion to the motor vehicle.
- **Subject Vehicles:** “Subject Vehicles” means the vehicles listed after the first paragraph of this letter.
- “Starting the vehicle’s motor” means the driver uses the motor start control to turn on power is “on” to the motor, resulting in input to the vehicle’s wheels and vehicle movement as a result of the driver applying the accelerator pedal.
- “Stopping the vehicle’s engine or motor” means the driver uses the engine/motor stop control to turn off power to the engine or motor and no input to the vehicle’s wheels or vehicle movement will result from the driver application of the accelerator pedal.
- The term “you” or “your” refers to General Motors.
- The singular includes the plural; the plural includes the singular. The masculine gender includes the feminine and neutral genders; and the neutral gender includes the masculine and feminine genders. “And” as well as “or” shall be construed either disjunctively or

conjunctively, to bring within the scope of this information request all responses that might otherwise be construed to be outside its scope. "Each" shall be construed to include "every" and "every" shall be construed to include "each". "Any" shall be construed to include "all" and "all" shall be construed to include "any". The use of a verb in any tense shall be construed as the use of the verb in a past or present tense, whenever necessary to bring within the scope of the document request all responses which might otherwise be construed to be outside its scope.

- The term "relate to" or "relating to" means constituting, comprising, containing, setting forth, showing, disclosing, describing, explaining, summarizing, concerning, or referring to, directly or indirectly.
- To "identify" or "state the identity of" a natural person means to state his/her full name, title, office, present work address and telephone number, and the name, address and telephone number of his/her present or last known employer, if any. Once an individual has been so identified, he or she may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- To "identify" or "state the identity of" a person other than a natural person means to state its full name and the present or last known address and telephone number of its headquarters. Once such a "person" has been so identified, it may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- Other Terms: To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "make," "model," "model year," "notice," "property damage," "property damage claim," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or plural form, have the same meaning as found in 49 CFR 579.4.

Please respond to the following requests. Please repeat the applicable request verbatim above each response. Identify the source of the information and indicate the last date the information was gathered. Answer each question for each of the Subject Vehicles as well as any other MY 2013-2014 vehicles identified by General Motors that have keyless ignition systems comparable to those in any of the Subject Vehicles. If any vehicles share the same starting system, they may be grouped together when responding. When grouping vehicles for responses please list all vehicles (by model year, make, and model) that each response is for.

1. For each of the subject vehicles, state the date when a starting system that allows the use of an electronic key fob (Key Code Carrying Device) was first introduced in production and state the number of vehicles manufactured by or for your company with that starting system for sale in the U.S. from that date through the date of your response to this letter, broken down by model year.

2. Separately, for each of the Subject Vehicles, explain the operation of the starting system. Include in your response, the location and operation of the key code carrying device and the engine/motor start/stop device.

3. Describe in detail how the Subject Vehicles' engine/motor is started. Include in your response where the electronic key code is sent (i.e. immobilizer or engine control unit ("ECU")), the path the electronic key code takes to enable the driver to start the engine/motor (include a diagram showing the components and how they "connect" to each other), at what point the electronic key code is considered inserted into the starting system, and what conditions need to remain for the electronic key code to remain inserted.
 - a. If the driver remained present in the vehicle, but the KCCD is removed from the vehicle after the vehicle's engine/motor is stopped, can the engine/motor be restarted using the original electronic key code described in item 3 above? If your response is yes, for what period of time, and/or for what number of attempts is this possible?

4. Describe in detail how the Subject Vehicles' engine/motor is stopped or turned off. Include in your response, how hard and long the driver must press the start/stop button, to which device the code or other electrical signal is sent (i.e., immobilizer or engine control unit ("ECU")), and which devices are turned off or deactivated by the ECU (i.e., starter, fuel pump, fuel injection system, etc.). Specify when exactly those devices are turned off or deactivated (i.e. after the engine/motor stop control is pressed to turn off the engine/motor, after the driver's door is opened, etc.)
 - a. Describe any operating conditions during which the driver cannot stop or turn off the engine/motor by using the stop control. These conditions may include, for example, the vehicle's transmission is not in "park" or the vehicle's speed is almost zero mph (or less than a certain speed).

5. Separately for each of the Subject Vehicles, describe how the starting system operates in the following scenarios referencing the descriptions provided in your response to item 1 . In each scenario, indicate when the electronic key code is first present in the Subject Vehicles, when it is recognized by the Subject Vehicles. In each scenario, describe when it is deactivated (engine/motor can no longer be started), and when it is purged from the Subject Vehicles, including the number of seconds it remains activated, if at all, after the driver turns the starting system off. In addition, in each scenario below, identify all audible and visual alerts made by the Subject Vehicles, specifically stating at what point each alert is made, what event triggered each alert, what event or factor each alert is intended to warn the driver of, and the length/duration (audible) or location/wording (visual) of each alert:

- a) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) while the transmission control is in the "park" position. The Subject Vehicle's ignition is turned off (activates the propulsion on/off control). The driver exits the vehicle with the key code carrying device on his person and moves outside of the effective range.
- b) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle is then turned off (activates the propulsion on/off control). The driver exits the Subject Vehicle leaving the key code carrying device in the Subject Vehicle.
- c) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle's engine/motor is then turned off (activates the propulsion system on/off control) with the transmission still in "drive". One minute elapses, after which the driver opens the driver's door and exits the Subject Vehicle, taking the key code carrying device with him outside of the effective range.

Provide responses for the following questions if they have not been previously answered. If the question has been previously answered, identify specifically, by question number and by line, where the response was previously provided:

6. Describe the circumstances under which the electronic code is purged or removed from the Subject Vehicles and/or is no longer recognized by the vehicle. Include in your response, where the key code carrying device must be located in terms of distance from the vehicle and how much time must have elapsed after the vehicle's engine/motor is turned off in order for the electronic key code to be purged or removed from the Subject Vehicles' memory.
7. What is the maximum effective range of the key code carrying device allowed for the electronic key code to be recognized by the Subject Vehicles? Explain the Subject Vehicles' response to the electronic code when they key code carrying device is moved beyond the maximum effective range.
8. Produce a copy of General Motors' complete test procedure and test report concerning FMVSS No. 114 applicable to the Subject Vehicles. Produce all results of General Motors' testing of the Subject Vehicles related to FMVSS No. 114 as well as copies of General Motors' internal sign off sheet(s) indicating compliance with FMVSS No. 114. Produce a copy of General Motors' complete test procedure concerning FMVSS No. 114 for the Subject Vehicles as it was provided to the manufacturer of the Subject Vehicles' starting system.

9. Separately for each of the Subject Vehicles, state the number of each of the following received by or of which General Motors is otherwise aware, which relate to or may relate to the starting system in the Subject Vehicles:
- a) Consumer complaints, including those from fleet operators;
 - b) Field reports, including, but not limited to field technical reports and dealer field reports;
 - c) Reports involving a crash, injury, or fatality;
 - d) Property damage claims;
 - e) Warrantee claims;
 - f) Third-party arbitration proceedings where General Motors is or was a party to the arbitration;
 - g) Lawsuits, both pending and closed, in which General Motors is or was defendant or codefendant; and,
 - h) Vehicle Owner Questionnaires (VOQs) provided to the National Highway Traffic Safety Administration (U.S.) and received or otherwise obtained by General Motors.

If General Motors cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, General Motors does not submit one or more requested documents or items of information in response to this information request, General Motors must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

The information requests set forth above are sent to General Motors pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to require a manufacturer to make reports to NHTSA. It constitutes a new request for a report. A timely and complete response by General Motors is required. General Motors' failure to respond promptly and fully to such a request could subject General Motors to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. Under 49 U.S.C. § 30165(a)(3), any person who violates 49 U.S.C. § 30166 is liable for penalties up to and including \$7,000 per day for failure to provide requested information. The maximum for a related series of violations is currently \$17,350,000. 49 C.F.R. § 578.6(a)(3). Other remedies and sanctions are available as well.

Additionally, we are requesting information to improve our understanding of the design standards and safety strategies that your company has in place to address the potential safety risks that may be present with push button start/stop vehicles. Your response to the following questions is optional:

10. What safety information does General Motors request its dealership personnel to provide to customers purchasing a new or used vehicle with push button start/stop?
11. What safety information does General Motors directly provide to a customer purchasing a new or used vehicle with push button start/stop, and through what means (i.e., owner's manual) is this information provided or communicated?

The address for mail or express delivery is: National Highway Traffic Safety Administration, Office of Vehicle Safety Compliance (NVS-221), Room W43-496, 1200 New Jersey Avenue SE, Washington, DC 20590. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to OA-114-140115B in General Motors' response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. General Motors' response to this IR is due no later than 30 calendar days from the date indicated on this letter. If General Motors finds that it is unable to provide all of the information requested within the time allotted, General Motors must request an extension from Amina Fisher of my staff at (202) 366-5307 no later than five (5) business days before the response due date. If General Motors is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information General Motors then has available, even if an extension has been granted.

If you have any technical questions concerning this matter, please call Amina Fisher of my staff at (202) 366-5307. Your cooperation and assistance is greatly appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Harry Thompson", followed by the handwritten text "for H.T." to its right.

Harry Thompson
Chief, Crash Avoidance Division
Office of Vehicle Safety Compliance

Enclosure – Data Sheets from field inspections

Vehicle 2013 Buick LaCrosse

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 09 05 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Buick
 VEHICLE MODEL LaCrosse
 VIN 1G4GG5G86DFR45665

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

	AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>4 beeps</u>	Location: <u>cluster</u>	
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>No remote detected</u> <u>Press brake</u> <u>NOTHING SAYING SHIFT TO P</u>	

If an audible alert sounds does the radio volume change?

Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- *electronic key code appears to still be in vehicle*
 (Complete 6.1)

NO- *electronic key code does not appear to still be in the vehicle*
 (Complete 6.1 - 8)

	AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location:	
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>NONE</u>	

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Buick LaCrosse

6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: 65 dB Duration: 4 beeps	Location: cluster
Exterior	dB level: NONE Duration:	Wording: No remote detected Press brake to restart NOTHING SAYING SHIFT TO P

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES *electronic key remains in vehicle*
 can be restarted w/o key fob

Vehicle 2013 Buick LaCrosse

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level:		Location:
Duration:		<i>NONE</i>
Exterior	<i>NONE</i>	Wording:
dB level:		
Duration:		

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level:	<i>65 dB</i>	Location: <i>cluster</i>
Duration:	<i>4 beeps</i>	Wording: <i>No remote detected</i>
Exterior		<i>duration 10 sec</i>
dB level:	<i>NONE</i>	
Duration:		

Vehicle 2013 Buick Verano

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 09 05 13
VEHICLE MODEL YEAR 2013
VEHICLE MAKE Buick
VEHICLE MODEL Verano
VIN 164P55SK8D4256434

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)
proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>4 beeps</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>Shift to Park</u>

If an audible alert sounds does the radio volume change?
 Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle *
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>4 beeps</u>	Location: <u>(center) message center</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>No remote detected</u> <u>displayed 5 sec</u> <u>NOTHING SAYING SHIFT TO P</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: 65 dB Duration: 4 beeps	Location: cluster
Exterior	dB level: NONE Duration:	Wording: No reverse detected displayed 5 sec NOTHING SAYING SHIFT TO P

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES	* though there is no message the vehicle is able to be restarted w/o key fob after being shifted to Park	electronic key does not leave vehicle
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Vehicle 2013 Buick Verano

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	
Duration:			
Exterior	NOISE		NOISE
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:	65 dB	Wording:	
Duration:	4 beeps		
Exterior			
dB level:	NOISE		No remote detected
Duration:			

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Cadillac SRX

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 05 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Cadillac
 VEHICLE MODEL SRX
 VIN 3G4FNAE3306518925

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE
no auto shift to park feature described

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>4 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>No remote detected</u> <u>Press brake to start</u> <u>NOTHING SAYING SHIFT TO P</u>

If an audible alert sounds does the radio volume change?

Reduced volume Radio turns off No change to radio volume

* alert plays ~~louder~~ ^{louder} when radio is on

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>4 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>No remote detected</u> <u>NOTHING SAYING SHIFT TO R</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Cadillac SRX

- 6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.
v w/ transmission ~~not~~ ^{not} in Park

AUDIBLE ¹		VISUAL
Interior	dB level: <i>60 dB</i> Duration: <i>continuous</i>	Location: <i>cluster</i>
Exterior	dB level: <i>NONE</i> Duration:	Wording: <i>No remote detected</i> <i>NOTHING SAYING SHIFT TO P</i>

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2013 Buick Regal

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 09 05 13

VEHICLE MODEL YEAR 2013

VEHICLE MAKE Buick

VEHICLE MODEL Regal

VIN ~~2646F~~ 2G4GT5G9D9248274

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

Proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>62 dB</u> Duration: <u>4 beeps</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>No remote detected</u> <u>Press brake to restart</u>

If an audible alert sounds does the radio volume change?

Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: 62 dB <u>NONE</u> Duration: 4 beeps <u>no sound</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>Shift to Park</u> <u>after vehicle shifted to Park the</u> <u>vehicle can be restarted</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

AUDIBLE ¹		VISUAL
Interior	dB level: 62 dB Duration: 4 beeps	Location: cluster
Exterior	dB level: NONE Duration:	Wording: Shift to Park

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

- YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required
- NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

- YES- Apparent failure, the transmission appears not to have auto shifted to Park
- NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES "Shift to Park" → vehicle is able to be restarted w/o key
 electronic
~~electronic~~ key does not leave the vehicle

Vehicle 2013 Buick Regal

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: ✕ Duration:	Location:
Exterior	NONE dB level: Duration:	Wording: NONE

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location: cluster
Exterior	NONE dB level: Duration:	Wording: No remote detected

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

E-MAIL AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Robert Babcock
Director
Regulation and Certification Department
Hyundai Motor Company
6800 Geddes Road
Superior Township, MI 48198

January 28, 2014

NVS-221AFi
OA-114-140115C

Re: Model Year 2013 and 2014 Push-Button Start Vehicles

Dear Mr. Babcock:

The Office of Vehicle Safety Compliance (“OVSC”) of the National Highway Traffic Safety Administration (“NHTSA”) investigated vehicles manufactured by Hyundai Motor Company to the requirements of Federal Motor Vehicle Safety Standard (“FMVSS”) No. 114, *Theft Protection and Rollaway Prevention*, found at 49 CFR § 571.114. Testing took place at Kia of Silver Spring, in Silver Spring, Maryland on August 20, 2013; and Fitz Auto Mall, in Gaithersburg, Maryland on August 29, 2013.

MY	Make	Model
2013	Hyundai	Elantra
2013	Hyundai	Genesis
2013	Hyundai	Santa Fe
2013	Hyundai	Sonata
2013	Hyundai	Tucson
2013	Hyundai	Veloster

OVSC performed tests using scenarios developed according to how we believed consumers could use vehicles equipped with KCCDs, focusing on Sections 5.1 and 5.2 of 49 CFR § 571.114. Since these systems operate differently depending on the manufacturer and, in some cases, the model, we ask that you review the results we obtained. In answering the items below, include any differences noted should your company conduct similar tests and the possible reasons for those differences.

Unless otherwise stated in the text, the following definitions apply to the information request set forth below:

- **Manufacturer:** “Hyundai” “you”, or “your” means Hyundai including all of its divisions, subsidiaries and affiliated enterprises, including with respect to any of the foregoing within or outside of the United States, any parent corporation, any subsidiary or affiliate, or any subsidiary or affiliate of any parent corporation, and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Hyundai.
- **Document(s):** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative findings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, CD-ROMs, compact disks, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by you, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document that contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, “document(s)” also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. The term “document” includes all documents described above whether verified by the manufacturer or not.
- **Consumer Complaint:** A “consumer complaint” is defined as a communication of any kind made by a consumer (or other person) to or with a manufacturer addressed to the

company, an officer thereof, or an entity thereof that handles consumer matters, a manufacturer website that receives consumer complaints, a manufacturer electronic mail system that receives such information at the corporate level, or that are otherwise received by a unit within the manufacturer that receives consumer inquiries or complaints, including telephonic complaints, expressing dissatisfaction with a product, or relating the unsatisfactory performance of a product, or any actual or potential defect in a product, or any even that allegedly was caused by any actual or potential defect in a product.

- **Effective Range:** “Effective Range” means the maximum distance the Key Code Carrying Device can be from the Subject Vehicle where the vehicle is able to recognize the electronic key code associated with that particular vehicle.
- **Electronic Code:** “Electronic Code” shall have the meaning used in the definition of “key” in 49 CFR § 571.114, S.4.
- **Key:** “Key” means the electronic code which, when inserted into the starting system by electronic means, enables the vehicle operator to activate the engine or motor [See 49 CFR § 571.114, S.4].
- **Key Code Carrying Device (KCCD):** “Key Code Carrying Device” means the physical device which is capable of electronically transmitting the key to the vehicle starting system without physical connection, other than its presence in the vehicle, between the device and the vehicle (i.e. the key fob).
- **Starting System:** “Starting System” means the vehicle system used in conjunction with the key code and the engine/motor start control to activate the engine, motor, or other system which provides propulsion to the motor vehicle.
- **Subject Vehicles:** “Subject Vehicles” means the vehicles listed after the first paragraph of this letter.
- “Starting the vehicle’s motor” means the driver uses the motor start control to turn on power is “on” to the motor, resulting in input to the vehicle’s wheels and vehicle movement as a result of the driver applying the accelerator pedal.
- “Stopping the vehicle’s engine or motor” means the driver uses the engine/motor stop control to turn off power to the engine or motor and no input to the vehicle’s wheels or vehicle movement will result from the driver application of the accelerator pedal.
- The term “you” or “your” refers to Hyundai.
- The singular includes the plural; the plural includes the singular. The masculine gender includes the feminine and neutral genders; and the neutral gender includes the masculine and feminine genders. “And” as well as “or” shall be construed either disjunctively or

conjunctively, to bring within the scope of this information request all responses that might otherwise be construed to be outside its scope. "Each" shall be construed to include "every" and "every" shall be construed to include "each". "Any" shall be construed to include "all" and "all" shall be construed to include "any". The use of a verb in any tense shall be construed as the use of the verb in a past or present tense, whenever necessary to bring within the scope of the document request all responses which might otherwise be construed to be outside its scope.

- The term "relate to" or "relating to" means constituting, comprising, containing, setting forth, showing, disclosing, describing, explaining, summarizing, concerning, or referring to, directly or indirectly.
- To "identify" or "state the identity of" a natural person means to state his/her full name, title, office, present work address and telephone number, and the name, address and telephone number of his/her present or last known employer, if any. Once an individual has been so identified, he or she may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- To "identify" or "state the identity of" a person other than a natural person means to state its full name and the present or last known address and telephone number of its headquarters. Once such a "person" has been so identified, it may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- Other Terms: To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "make," "model," "model year," "notice," "property damage," "property damage claim," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or plural form, have the same meaning as found in 49 CFR 579.4.

Please respond to the following requests. Please repeat the applicable request verbatim above each response. Identify the source of the information and indicate the last date the information was fathered. Answer each question for each of the Subject Vehicles as well as any other MY 2013-2014 vehicles identified by Hyundai that have keyless ignition systems comparable to those in any of the Subject Vehicles. If any vehicles share the same starting system, they may be grouped together when responding. When grouping vehicles for responses please list all vehicles (by model year, make, and model) that each response is for.

1. For each of the subject vehicles, state the date when a starting system that allows the use of an electronic key fob (Key Code Carrying Device) was first introduced in production and state the number of vehicles manufactured by or for your company with that starting system for sale in the U.S. from that date through the date of your response to this letter, broken down by model year.

2. Separately, for each of the Subject Vehicles, explain the operation of the starting system. Include in your response, the location and operation of the key code carrying device and the engine/motor start/stop device.

3. Describe in detail how the Subject Vehicles' engine/motor is started. Include in your response where the electronic key code is sent (i.e. immobilizer or engine control unit ("ECU")), the path the electronic key code takes to enable the driver to start the engine/motor (include a diagram showing the components and how they "connect" to each other), at what point the electronic key code is considered inserted into the starting system, and what conditions need to remain for the electronic key code to remain inserted.
 - a. If the driver remained present in the vehicle, but the KCCD is removed from the vehicle after the vehicle's engine/motor is stopped, can the engine/motor be restarted using the original electronic key code described in item 3 above? If your response is yes, for what period of time, and/or for what number of attempts is this possible?

4. Describe in detail how the Subject Vehicles' engine/motor is stopped or turned off. Include in your response, how hard and long the driver must press the start/stop button, to which device the code or other electrical signal is sent (i.e., immobilizer or engine control unit ("ECU")), and which devices are turned off or deactivated by the ECU (i.e., starter, fuel pump, fuel injection system, etc.). Specify when exactly those devices are turned off or deactivated (i.e. after the engine/motor stop control is pressed to turn off the engine/motor, after the driver's door is opened, etc.)
 - a. Describe any operating conditions during which the driver cannot stop or turn off the engine/motor by using the stop control. These conditions may include, for example, the vehicle's transmission is not in "park" or the vehicle's speed is almost zero mph (or less than a certain speed).

5. Separately for each of the Subject Vehicles, describe how the starting system operates in the following scenarios referencing the descriptions provided in your response to item 1 . In each scenario, indicate when the electronic key code is first present in the Subject Vehicles, when it is recognized by the Subject Vehicles. In each scenario, describe when it is deactivated (engine/motor can no longer be started), and when it is purged from the Subject Vehicles, including the number of seconds it remains activated, if at all, after the driver turns the starting system off. In addition, in each scenario below, identify all audible and visual alerts made by the Subject Vehicles, specifically stating at what point each alert is made, what event triggered each alert, what event or factor each alert is intended to warn the driver of, and the length/duration (audible) or location/wording (visual) of each alert:

- a) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) while the transmission control is in the "park" position. The Subject Vehicle's ignition is turned off (activates the propulsion on/off control). The driver exits the vehicle with the key code carrying device on his person and moves outside of the effective range.
- b) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle is then turned off (activates the propulsion on/off control). The driver exits the Subject Vehicle leaving the key code carrying device in the Subject Vehicle.
- c) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle's engine/motor is then turned off (activates the propulsion system on/off control) with the transmission still in "drive". One minute elapses, after which the driver opens the driver's door and exits the Subject Vehicle, taking the key code carrying device with him outside of the effective range.

Provide responses for the following questions if they have not been previously answered. If the question has been previously answered, identify specifically, by question number and by line, where the response was previously provided:

6. Describe the circumstances under which the electronic code is purged or removed from the Subject Vehicles and/or is no longer recognized by the vehicle. Include in your response, where the key code carrying device must be located in terms of distance from the vehicle and how much time must have elapsed after the vehicle's engine/motor is turned off in order for the electronic key code to be purged or removed from the Subject Vehicles' memory.
7. What is the maximum effective range of the key code carrying device allowed for the electronic key code to be recognized by the Subject Vehicles? Explain the Subject Vehicles' response to the electronic code when they key code carrying device is moved beyond the maximum effective range.
8. Produce a copy of Hyundai's complete test procedure and test report concerning FMVSS No. 114 applicable to the Subject Vehicles. Produce all results of Hyundai's testing of the Subject Vehicles related to FMVSS No. 114 as well as copies of Hyundai's internal sign off sheet(s) indicating compliance with FMVSS No. 114. Produce a copy of Hyundai's complete test procedure concerning FMVSS No. 114 for the Subject Vehicles as it was provided to the manufacturer of the Subject Vehicles' starting system.

9. Separately for each of the Subject Vehicles, state the number of each of the following received by or of which Hyundai is otherwise aware, which relate to or may relate to the starting system in the Subject Vehicles:
- a) Consumer complaints, including those from fleet operators;
 - b) Field reports, including, but not limited to field technical reports and dealer field reports;
 - c) Reports involving a crash, injury, or fatality;
 - d) Property damage claims;
 - e) Warrantee claims;
 - f) Third-party arbitration proceedings where Hyundai is or was a party to the arbitration;
 - g) Lawsuits, both pending and closed, in which Hyundai is or was defendant or codefendant; and,
 - h) Vehicle Owner Questionnaires (VOQs) provided to the National Highway Traffic Safety Administration (U.S.) and received or otherwise obtained by Hyundai.

If Hyundai cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Hyundai does not submit one or more requested documents or items of information in response to this information request, Hyundai must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

The information requests set forth above are sent to Hyundai pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to require a manufacturer to make reports to NHTSA. It constitutes a new request for a report. A timely and complete response by Hyundai is required. Hyundai's failure to respond promptly and fully to such a request could subject Hyundai to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. Under 49 U.S.C. § 30165(a)(3), any person who violates 49 U. S. C. § 30166 is liable for penalties up to and including \$7,000 per day for failure to provide requested information. The maximum for a related series of violations is currently \$17,350,000. 49 C.F.R. § 578.6(a)(3). Other remedies and sanctions are available as well.

The National Traffic and Motor Vehicle Safety Act, as amended, 49 U.S.C. § 30101 et seq., requires that a manufacturer conduct a notification and remedy campaign when it decides in good faith an item of motor vehicle equipment does not comply with an applicable motor vehicle safety standard. 49 U.S.C. § 30118-30120. In our view, this means a recall should occur when the manufacturer decides or should have decided that its equipment is noncompliant. The first step of this process is the filing of a noncompliance report in accordance with 49 CFR 573, "Defect and Noncompliance Reports" (copy enclosed). We have also enclosed a copy of the "Part 573 Helmet Noncompliance Report Guide" to assist you in the preparation of this report. A Part 573 report must be followed by a noncompliance notification in accordance with 49 CFR Part 577 (copy enclosed). It is recommended that you send a draft copy of this notification to the agency for review before sending it to your customers. Failure to conduct a notification and remedy campaign within a reasonable time warrants NHTSA to seek civil penalties under 49 U.S.C. § 30165. In addition, 49 U.S.C. § 30165 authorizes a civil penalty up to \$7,000 for each violation of an applicable motor vehicle safety standard. A separate violation occurs for each item of motor vehicle equipment not in compliance with a maximum penalty of \$17,350,000.

Additionally, we are requesting information to improve our understanding of the design standards and safety strategies that your company has in place to address the potential safety risks that may be present with push button start/stop vehicles. Your response to the following questions is optional:

10. What safety information does Hyundai request its dealership personnel to provide to customers purchasing a new or used vehicle with push button start/stop?
11. What safety information does Hyundai directly provide to a customer purchasing a new or used vehicle with push button start/stop, and through what means (i.e., owner's manual) is this information provided or communicated?

The address for mail or express delivery is: National Highway Traffic Safety Administration, Office of Vehicle Safety Compliance (NVS-221), Room W43-496, 1200 New Jersey Avenue SE, Washington, DC 20590. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to OA-114-140115C in Hyundai's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. Hyundai's response to this IR is due no later than 30 calendar days from the date indicated on this letter. If Hyundai finds that it is unable to provide all of the information requested within the time allotted, Hyundai must request an extension from Amina Fisher of my staff at (202) 366-5307 no later than five (5) business days before the response due date. If Hyundai is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Hyundai then has available, even if an extension has been granted.

If you have any technical questions concerning this matter, please call Amina Fisher of my staff at (202) 366-5307. Your cooperation and assistance is greatly appreciated.

Sincerely,

A handwritten signature in cursive script that reads "Harry Thompson for H.T." The signature is written in black ink on a white background.

Harry Thompson
Chief, Crash Avoidance Division
Office of Vehicle Safety Compliance

Enclosure – Data Sheets from field inspections

Vehicle 2013 Hyundai Elantra

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 29 13

VEHICLE MODEL YEAR 2013

VEHICLE MAKE Hyundai

VEHICLE MODEL Elantra

VIN KMH035LE0DUD088779

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior	dB level: <u>66 dB</u> Duration: <u>10 sec</u>	Location: <u>cluster</u>	
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>No Key (telltale)</u> <u>Shift to Park</u>	

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL	
Interior	dB level: <u>66 dB</u> Duration: <u>10 sec</u>	Location: <u>cluster</u>	
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>No Key (telltale)</u> <u>Shift to Park</u>	

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Elantra

6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: 66 dB Duration: 10 sec	Location: cluster
Exterior	dB level: 74 dB Duration: 6 sec	Wording: Key is not in vehicle
		NOTHING SAYING SHIFT TO P

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES Vehicle must be turned back on in order to be able to shift back into Park

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Elantra

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level:		Location:
Duration:		Wording: <i>NONE</i>
Exterior	<i>NONE</i>	
dB level:		
Duration:		

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level: <i>66 dB</i>		Location: <i>cluster</i>
Duration: <i>10 sec</i>		Wording: <i>Key not in vehicle</i>
Exterior		
dB level: <i>74 dB</i>		
Duration: <i>6 sec</i>		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Genesis

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 29 13

VEHICLE MODEL YEAR 2013

VEHICLE MAKE Hyundai

VEHICLE MODEL Genesis

VIN KMHHTGK05DU102174

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>63 dB</u> Duration: <u>8 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>No Key (telltale)</u> <u>Shift to Park</u> <u>↳ duration 8 sec</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>63 dB</u> Duration: <u>8 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>No Key (telltale)</u> <u>Shift to Park</u> <u>↳ duration 8 sec</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Genesis

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: 63 dB Duration: continuous	Location: cluster
Exterior	until door closed dB level: 64 dB Duration: 5 sec	Wording: Key not in vehicle NOTHING EXTING SHIFT TO P

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	None
Duration:			
Exterior	None		
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	<i>cluster</i>
dB level:	<i>63 dB</i>	Wording:	<i>Key not in vehicle</i>
Duration:	<i>8 sec</i>		
Exterior			
dB level:	<i>64 dB</i>		
Duration:	<i>5 sec</i>		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Santa Fe

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 05 13

VEHICLE MODEL YEAR 2013

VEHICLE MAKE Hyundai

VEHICLE MODEL Santa Fe

VIN 5X4ZU3LB7D6077779 C20134206

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE
no auto shift to park feature described

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>60 dB</u> Duration: <u>9 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Shift to "P" position displayed for 6 sec</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location:
Exterior	<u>NONE</u> dB level: Duration:	Wording: <u>NONE</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Santa Fe

6.1 Start vehicle then turn vehicle off; ^{v w/ transmission not in Park} wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

AUDIBLE ¹		VISUAL
Interior	dB level: 60 dB Duration: continuous	Location: cluster
Exterior	dB level: 77 dB Duration: 5 sec	Wording: Key not in vehicle NOTHING SAYING SHIFT TO P

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2013 Hyundai Sonata

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 29 13

VEHICLE MODEL YEAR 2013

VEHICLE MAKE Hyundai

VEHICLE MODEL Sonata

VIN 5NPE4ACXDH793118

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior	dB level: <u>40 dB</u> Duration: <u>10 sec</u>	Location: <u>cluster</u>	
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>No Key (telltale)</u> <u>Shift to Park</u>	

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL	
Interior	dB level: <u>40 dB</u> Duration: <u>10 sec</u>	Location: <u>cluster</u>	
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>No Key (telltale)</u> <u>Shift to Park</u>	

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Sonata

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: <i>too low to measure</i> Duration: 8 <i>5</i> sec	Location: <i>cluster</i>
Exterior	dB level: <i>66 dB</i> Duration: <i>5</i> sec	Wording: <i>Key not in vehicle</i> <i>NOTHING SAYING SHIFT TO P</i>

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?
- YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required
 - NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)
- YES- Apparent failure, the transmission appears not to have auto shifted to Park
 - NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Sonata

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	<i>NONE</i>
Duration:			
Exterior	<i>NONE</i>		
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	<i>cluster</i>
dB level:		Wording:	<i>Key not in vehicle</i>
Duration:	<i>NONE</i>		
Exterior			
dB level:	<i>66 dB</i>		
Duration:	<i>6 sec</i>		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Tucson

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 29 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Hyundai
 VEHICLE MODEL Tucson
 VIN KM8J03AC6DU678924

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>70 dB</u> Duration: <u>15 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>No Key (teletale)</u>
		<u>NOTHING SAYING SHIFT TO P</u>

If an audible alert sounds does the radio volume change?

Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>70 dB</u> Duration: <u>15 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>No Key (teletale)</u>
		<u>NOTHING SAYING SHIFT TO P</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Tucson

6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior		
dB level:	70 dB	Location: cluster
Duration:	15 sec	
Exterior		
dB level:	NONE	Wording: Key out
Duration:		NOTHING SAYING SHIFT TO P

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Tucson

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	<i>NONE</i>
Duration:			
Exterior	<i>NONE</i>		
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	<i>cluster</i>
dB level:		Wording:	<i>Key out</i>
Duration:			
Exterior	<i>NONE</i>		
dB level:			
Duration:			

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Veloster

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 29 13

VEHICLE MODEL YEAR 2013

VEHICLE MAKE Hyundai

VEHICLE MODEL Veloster

VIN KMHTC6AE4DU108249

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>56 dB</u> Duration: <u>6 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>No Key (tell tale)</u> <u>Shift to Park</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>56 dB</u> Duration: <u>6 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration: <u>NONE</u>	Wording: <u>No Key (tell tale)</u> <u>Shift to Park</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Hyundai Veloster

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ²	VISUAL
Interior	dB level: <i>64 dB</i> Duration: <i>6 sec</i>	Location: <i>cluster</i>
Exterior	dB level: <i>68 dB</i> Duration: <i>6 sec</i>	Wording: <i>Key not in vehicle</i> <i>NOTHING SAYING SHIFT TO P</i>

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES *Vehicle must be turned back on in order to be shifted back into Park*

Vehicle 2013 Hyundai Veloster

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level:		Location:
Duration:		<i>NONE</i>
Exterior	<i>NONE</i>	Wording:
dB level:		
Duration:		

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level: <i>64 dB</i>		Location: <i>cluster</i>
Duration: <i>6 sec</i>		Wording: <i>Key not in vehicle</i>
Exterior		
dB level: <i>68 dB</i>		
Duration: <i>6 sec</i>		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

**E-MAIL AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Mr. Robert Babcock
Director
Regulation and Certification Department
Kia Motor Company
6800 Geddes Road
Superior Township, MI 48198

January 28, 2014

NVS-221AFi
OA-114-140115G

Re: Model Year 2013 and 2014 Push-Button Start Vehicles

Dear Mr. Babcock:

The Office of Vehicle Safety Compliance (“OVSC”) of the National Highway Traffic Safety Administration (“NHTSA”) investigated vehicles manufactured by Kia Motor Company to the requirements of Federal Motor Vehicle Safety Standard (“FMVSS”) No. 114, *Theft Protection and Rollaway Prevention*, found at 49 CFR § 571.114. Testing took place at Kia of Silver Spring, in Silver Spring, Maryland on August 20, 2013; and Fitz Auto Mall, in Gaithersburg, Maryland on August 29, 2013.

MY	Make	Model
2013	Kia	Optima
2013	Kia	Soul !
2014	Kia	Sorento

OVSC performed tests using scenarios developed according to how we believed consumers could use vehicles equipped with KCCDs, focusing on Sections 5.1 and 5.2 of 49 CFR § 571.114. Since these systems operate differently depending on the manufacturer and, in some cases, the model, we ask that you review the results we obtained. In answering the items below, include any differences noted should your company conduct similar tests and the possible reasons for those differences.

Unless otherwise stated in the text, the following definitions apply to the information request set forth below:

- **Manufacturer:** “Kia” “you”, or “your” means Kia including all of its divisions, subsidiaries and affiliated enterprises, including with respect to any of the foregoing within or outside of the United States, any parent corporation, any subsidiary or affiliate, or any subsidiary or affiliate of any parent corporation, and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Kia.
- **Document(s):** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative findings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, CD-ROMs, compact disks, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by you, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document that contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, “document(s)” also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. The term “document” includes all documents described above whether verified by the manufacturer or not.
- **Consumer Complaint:** A “consumer complaint” is defined as a communication of any kind made by a consumer (or other person) to or with a manufacturer addressed to the

company, an officer thereof, or an entity thereof that handles consumer matters, a manufacturer website that receives consumer complaints, a manufacturer electronic mail system that receives such information at the corporate level, or that are otherwise received by a unit within the manufacturer that receives consumer inquiries or complaints, including telephonic complaints, expressing dissatisfaction with a product, or relating the unsatisfactory performance of a product, or any actual or potential defect in a product, or any even that allegedly was caused by any actual or potential defect in a product.

- **Effective Range:** “Effective Range” means the maximum distance the Key Code Carrying Device can be from the Subject Vehicle where the vehicle is able to recognize the electronic key code associated with that particular vehicle.
- **Electronic Code:** “Electronic Code” shall have the meaning used in the definition of “key” in 49 CFR § 571.114, S.4.
- **Key:** “Key” means the electronic code which, when inserted into the starting system by electronic means, enables the vehicle operator to activate the engine or motor [See 49 CFR § 571.114, S.4].
- **Key Code Carrying Device (KCCD):** “Key Code Carrying Device” means the physical device which is capable of electronically transmitting the key to the vehicle starting system without physical connection, other than its presence in the vehicle, between the device and the vehicle (i.e. the key fob).
- **Starting System:** “Starting System” means the vehicle system used in conjunction with the key code and the engine/motor start control to activate the engine, motor, or other system which provides propulsion to the motor vehicle.
- **Subject Vehicles:** “Subject Vehicles” means the vehicles listed after the first paragraph of this letter.
- “Starting the vehicle’s motor” means the driver uses the motor start control to turn on power is “on” to the motor, resulting in input to the vehicle’s wheels and vehicle movement as a result of the driver applying the accelerator pedal.
- “Stopping the vehicle’s engine or motor” means the driver uses the engine/motor stop control to turn off power to the engine or motor and no input to the vehicle’s wheels or vehicle movement will result from the driver application of the accelerator pedal.
- The term “you” or “your” refers to Kia.
- The singular includes the plural; the plural includes the singular. The masculine gender includes the feminine and neutral genders; and the neutral gender includes the masculine and feminine genders. “And” as well as “or” shall be construed either disjunctively or

conjunctively, to bring within the scope of this information request all responses that might otherwise be construed to be outside its scope. "Each" shall be construed to include "every" and "every" shall be construed to include "each". "Any" shall be construed to include "all" and "all" shall be construed to include "any". The use of a verb in any tense shall be construed as the use of the verb in a past or present tense, whenever necessary to bring within the scope of the document request all responses which might otherwise be construed to be outside its scope.

- The term "relate to" or "relating to" means constituting, comprising, containing, setting forth, showing, disclosing, describing, explaining, summarizing, concerning, or referring to, directly or indirectly.
- To "identify" or "state the identity of" a natural person means to state his/her full name, title, office, present work address and telephone number, and the name, address and telephone number of his/her present or last known employer, if any. Once an individual has been so identified, he or she may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- To "identify" or "state the identity of" a person other than a natural person means to state its full name and the present or last known address and telephone number of its headquarters. Once such a "person" has been so identified, it may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- Other Terms: To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "make," "model," "model year," "notice," "property damage," "property damage claim," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or plural form, have the same meaning as found in 49 CFR 579.4.

Please respond to the following requests. Please repeat the applicable request verbatim above each response. Identify the source of the information and indicate the last date the information was fathered. Answer each question for each of the Subject Vehicles as well as any other MY 2013-2014 vehicles identified by Kia that have keyless ignition systems comparable to those in any of the Subject Vehicles. If any vehicles share the same starting system, they may be grouped together when responding. When grouping vehicles for responses please list all vehicles (by model year, make, and model) that each response is for.

1. For each of the subject vehicles, state the date when a starting system that allows the use of an electronic key fob (Key Code Carrying Device) was first introduced in production and state the number of vehicles manufactured by or for your company with that starting system for sale in the U.S. from that date through the date of your response to this letter, broken down by model year.

2. Separately, for each of the Subject Vehicles, explain the operation of the starting system. Include in your response, the location and operation of the key code carrying device and the engine/motor start/stop device.

3. Describe in detail how the Subject Vehicles' engine/motor is started. Include in your response where the electronic key code is sent (i.e. immobilizer or engine control unit ("ECU")), the path the electronic key code takes to enable the driver to start the engine/motor (include a diagram showing the components and how they "connect" to each other), at what point the electronic key code is considered inserted into the starting system, and what conditions need to remain for the electronic key code to remain inserted.
 - a. If the driver remained present in the vehicle, but the KCCD is removed from the vehicle after the vehicle's engine/motor is stopped, can the engine/motor be restarted using the original electronic key code described in item 3 above? If your response is yes, for what period of time, and/or for what number of attempts is this possible?

4. Describe in detail how the Subject Vehicles' engine/motor is stopped or turned off. Include in your response, how hard and long the driver must press the start/stop button, to which device the code or other electrical signal is sent (i.e., immobilizer or engine control unit ("ECU")), and which devices are turned off or deactivated by the ECU (i.e., starter, fuel pump, fuel injection system, etc.). Specify when exactly those devices are turned off or deactivated (i.e. after the engine/motor stop control is pressed to turn off the engine/motor, after the driver's door is opened, etc.)
 - a. Describe any operating conditions during which the driver cannot stop or turn off the engine/motor by using the stop control. These conditions may include, for example, the vehicle's transmission is not in "park" or the vehicle's speed is almost zero mph (or less than a certain speed).

5. Separately for each of the Subject Vehicles, describe how the starting system operates in the following scenarios referencing the descriptions provided in your response to item 1 . In each scenario, indicate when the electronic key code is first present in the Subject Vehicles, when it is recognized by the Subject Vehicles. In each scenario, describe when it is deactivated (engine/motor can no longer be started), and when it is purged from the Subject Vehicles, including the number of seconds it remains activated, if at all, after the driver turns the starting system off. In addition, in each scenario below, identify all audible and visual alerts made by the Subject Vehicles, specifically stating at what point each alert is made, what event triggered each alert, what event or factor each alert is intended to warn the driver of, and the length/duration (audible) or location/wording (visual) of each alert:

- a) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) while the transmission control is in the "park" position. The Subject Vehicle's ignition is turned off (activates the propulsion on/off control). The driver exits the vehicle with the key code carrying device on his person and moves outside of the effective range.
- b) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle is then turned off (activates the propulsion on/off control). The driver exits the Subject Vehicle leaving the key code carrying device in the Subject Vehicle.
- c) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle's engine/motor is then turned off (activates the propulsion system on/off control) with the transmission still in "drive". One minute elapses, after which the driver opens the driver's door and exits the Subject Vehicle, taking the key code carrying device with him outside of the effective range.

Provide responses for the following questions if they have not been previously answered. If the question has been previously answered, identify specifically, by question number and by line, where the response was previously provided:

6. Describe the circumstances under which the electronic code is purged or removed from the Subject Vehicles and/or is no longer recognized by the vehicle. Include in your response, where the key code carrying device must be located in terms of distance from the vehicle and how much time must have elapsed after the vehicle's engine/motor is turned off in order for the electronic key code to be purged or removed from the Subject Vehicles' memory.
7. What is the maximum effective range of the key code carrying device allowed for the electronic key code to be recognized by the Subject Vehicles? Explain the Subject Vehicles' response to the electronic code when they key code carrying device is moved beyond the maximum effective range.
8. Produce a copy of Kia's complete test procedure and test report concerning FMVSS No. 114 applicable to the Subject Vehicles. Produce all results of Kia's testing of the Subject Vehicles related to FMVSS No. 114 as well as copies of Kia's internal sign off sheet(s) indicating compliance with FMVSS No. 114. Produce a copy of Kia's complete test procedure concerning FMVSS No. 114 for the Subject Vehicles as it was provided to the manufacturer of the Subject Vehicles' starting system.

9. Separately for each of the Subject Vehicles, state the number of each of the following received by or of which Kia is otherwise aware, which relate to or may relate to the starting system in the Subject Vehicles:
- a) Consumer complaints, including those from fleet operators;
 - b) Field reports, including, but not limited to field technical reports and dealer field reports;
 - c) Reports involving a crash, injury, or fatality;
 - d) Property damage claims;
 - e) Warrantee claims;
 - f) Third-party arbitration proceedings where Kia is or was a party to the arbitration;
 - g) Lawsuits, both pending and closed, in which Kia is or was defendant or codefendant; and,
 - h) Vehicle Owner Questionnaires (VOQs) provided to the National Highway Traffic Safety Administration (U.S.) and received or otherwise obtained by Kia.

If Kia cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Kia does not submit one or more requested documents or items of information in response to this information request, Kia must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

The information requests set forth above are sent to Kia pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to require a manufacturer to make reports to NHTSA. It constitutes a new request for a report. A timely and complete response by Kia is required. Kia's failure to respond promptly and fully to such a request could subject Kia to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. Under 49 U.S.C. § 30165(a)(3), any person who violates 49 U. S. C. § 30166 is liable for penalties up to and including \$7,000 per day for failure to provide requested information. The maximum for a related series of violations is currently \$17,350,000. 49 C.F.R. § 578.6(a)(3). Other remedies and sanctions are available as well.

Additionally, we are requesting information to improve our understanding of the design standards and safety strategies that your company has in place to address the potential safety risks that may be present with push button start/stop vehicles. Your response to the following questions is optional:

10. What safety information does Kia request its dealership personnel to provide to customers purchasing a new or used vehicle with push button start/stop?
11. What safety information does Kia directly provide to a customer purchasing a new or used vehicle with push button start/stop, and through what means (i.e., owner's manual) is this information provided or communicated?

The address for mail or express delivery is: National Highway Traffic Safety Administration, Office of Vehicle Safety Compliance (NVS-221), Room W43-496, 1200 New Jersey Avenue SE, Washington, DC 20590. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to OA-114-140115G in Kia's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. Kia's response to this IR is due no later than 30 calendar days from the date indicated on this letter. If Kia finds that it is unable to provide all of the information requested within the time allotted, Kia must request an extension from Amina Fisher of my staff at (202) 366-5307 no later than five (5) business days before the response due date. If Kia is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Kia then has available, even if an extension has been granted.

If you have any technical questions concerning this matter, please call Amina Fisher of my staff at (202) 366-5307. Your cooperation and assistance is greatly appreciated.

Sincerely,



for H.T.

Harry Thompson
Chief, Crash Avoidance Division
Office of Vehicle Safety Compliance

Enclosure – Data Sheets from field inspections

Vehicle 2013 Kia Optima EX

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 20 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Kia
 VEHICLE MODEL Optima EX
 VIN X5XGN4A79DG173653
 Automatic transmission (confirm) YES NO
 Activation of starting system (include key type)
Proximity
Proximity Key fob
push button start

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>62 dB</u> Duration: <u>17 sec</u>	Location: <u>cluster</u> cluster
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Shift to P position</u> <u>position</u> <u>displayed for 10 sec</u>

If an audible alert sounds does the radio volume change?
 Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>62 dB</u> Duration: <u>17 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Shift to P position</u> <u>displayed for 10 sec</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Kia Optima Ex

- 6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.
mission not in Park
w/ transmission

	AUDIBLE ¹	VISUAL
Interior	dB level: <i>62 dB</i> Duration: <i>17 sec</i>	Location: <i>cluster</i>
Exterior	dB level: <i>71 dB</i> Duration: <i>7 sec</i>	Wording: <i>Shift to P position displayed for 10 sec</i>

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2013 Kia Soul !

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 20 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Kia
 VEHICLE MODEL Soul !
 VIN KNDJT2A67D7767013

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button start

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>41-45 dB</u> Duration: <u>10 sec</u>	Location: <u>NONE</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording:

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>41-45 dB</u> Duration: <u>10 sec</u>	Location: cluster <u>cluster</u>
Exterior	dB level: <u>77 dB</u> Duration: <u>5 sec</u>	Wording: <u>Key out</u>
		<u>NOTHING SAYING SHIFT TO P</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Kia Soul¹

- 6.1 Start vehicle then turn vehicle off; wait ~30 sec ^{mission} again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: 41-45 dB Duration: 10 sec	Location: cluster
Exterior	dB level: 77 dB Duration: 5 sec	Wording: Key out NOTHING SAYING SHIFT TO P

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2014 Kia Sorento

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 05 13
 VEHICLE MODEL YEAR 2014
 VEHICLE MAKE Kia
 VEHICLE MODEL Sorento
 VIN 5X4KTCAG4EG469047 CR0144200

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE
no auto shift to park feature described

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>10 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Shift to "P" position displayed for 2 sec</u>

If an audible alert sounds does the radio volume change?
 Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location: <u>cluster</u>
Exterior	<u>NONE</u> dB level: Duration:	Wording: <u>Key not in vehicle</u> <u>vehicle</u> <u>NOTHING SAYING SHIFT TO P</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2014 Kia Sorento

6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated. *yw/transmission not in Park*

	AUDIBLE ¹	VISUAL
Interior	dB level: <i>65 dB</i> Duration: <i>10 sec</i>	Location: <i>cluster</i>
Exterior	dB level: <i>77 dB</i> Duration: <i>5 sec</i>	Wording: <i>Shift to "P" position displayed for 2 sec</i>

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

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8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

**E-MAIL AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Ms. Tracy Woodard
Director
Government Affairs Office
Nissan North America, Inc.
One Nissan Way
PO Box 685001
Franklin, TN 37068-5001

January 28, 2014

NVS-221AFi
OA-114-140115D

Re: Model Year 2013 and 2014 Push-Button Start Vehicles

Dear Ms. Woodard:

The Office of Vehicle Safety Compliance (“OVSC”) of the National Highway Traffic Safety Administration (“NHTSA”) investigated vehicles manufactured by Nissan North America to the requirements of Federal Motor Vehicle Safety Standard (“FMVSS”) No. 114, *Theft Protection and Rollaway Prevention*, found at 49 CFR § 571.114. Testing took place at Herb Gordon Nissan, in Silver Spring, Maryland on August 21, 2013.

MY	Make	Model
2013	Nissan	Cube
2013	Nissan	Juke
2013	Nissan	Murano
2014	Nissan	Altima
2014	Nissan	Sentra
2014	Nissan	Versa Note

OVSC performed tests using scenarios developed according to how we believed consumers could use vehicles equipped with KCCDs, focusing on Sections 5.1 and 5.2 of 49 CFR § 571.114. Since these systems operate differently depending on the manufacturer and, in some cases, the model, we ask that you review the results we obtained. In answering the items below, include any differences noted should your company conduct similar tests and the possible reasons for those differences.

Unless otherwise stated in the text, the following definitions apply to the information request set forth below:

- **Manufacturer:** “Nissan” “you”, or “your” means Nissan including all of its divisions, subsidiaries and affiliated enterprises, including with respect to any of the foregoing within or outside of the United States, any parent corporation, any subsidiary or affiliate, or any subsidiary or affiliate of any parent corporation, and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Nissan.
- **Document(s):** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative findings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, CD-ROMs, compact disks, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by you, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document that contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, “document(s)” also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. The term “document” includes all documents described above whether verified by the manufacturer or not.
- **Consumer Complaint:** A “consumer complaint” is defined as a communication of any kind made by a consumer (or other person) to or with a manufacturer addressed to the

company, an officer thereof, or an entity thereof that handles consumer matters, a manufacturer website that receives consumer complaints, a manufacturer electronic mail system that receives such information at the corporate level, or that are otherwise received by a unit within the manufacturer that receives consumer inquiries or complaints, including telephonic complaints, expressing dissatisfaction with a product, or relating the unsatisfactory performance of a product, or any actual or potential defect in a product, or any even that allegedly was caused by any actual or potential defect in a product.

- **Effective Range:** “Effective Range” means the maximum distance the Key Code Carrying Device can be from the Subject Vehicle where the vehicle is able to recognize the electronic key code associated with that particular vehicle.
- **Electronic Code:** “Electronic Code” shall have the meaning used in the definition of “key” in 49 CFR § 571.114, S.4.
- **Key:** “Key” means the electronic code which, when inserted into the starting system by electronic means, enables the vehicle operator to activate the engine or motor [See 49 CFR § 571.114, S.4].
- **Key Code Carrying Device (KCCD):** “Key Code Carrying Device” means the physical device which is capable of electronically transmitting the key to the vehicle starting system without physical connection, other than its presence in the vehicle, between the device and the vehicle (i.e. the key fob).
- **Starting System:** “Starting System” means the vehicle system used in conjunction with the key code and the engine/motor start control to activate the engine, motor, or other system which provides propulsion to the motor vehicle.
- **Subject Vehicles:** “Subject Vehicles” means the vehicles listed after the first paragraph of this letter.
- “Starting the vehicle’s motor” means the driver uses the motor start control to turn on power is “on” to the motor, resulting in input to the vehicle’s wheels and vehicle movement as a result of the driver applying the accelerator pedal.
- “Stopping the vehicle’s engine or motor” means the driver uses the engine/motor stop control to turn off power to the engine or motor and no input to the vehicle’s wheels or vehicle movement will result from the driver application of the accelerator pedal.
- The term “you” or “your” refers to Nissan.
- The singular includes the plural; the plural includes the singular. The masculine gender includes the feminine and neutral genders; and the neutral gender includes the masculine and feminine genders. “And” as well as “or” shall be construed either disjunctively or

conjunctively, to bring within the scope of this information request all responses that might otherwise be construed to be outside its scope. "Each" shall be construed to include "every" and "every" shall be construed to include "each". "Any" shall be construed to include "all" and "all" shall be construed to include "any". The use of a verb in any tense shall be construed as the use of the verb in a past or present tense, whenever necessary to bring within the scope of the document request all responses which might otherwise be construed to be outside its scope.

- The term "relate to" or "relating to" means constituting, comprising, containing, setting forth, showing, disclosing, describing, explaining, summarizing, concerning, or referring to, directly or indirectly.
- To "identify" or "state the identity of" a natural person means to state his/her full name, title, office, present work address and telephone number, and the name, address and telephone number of his/her present or last known employer, if any. Once an individual has been so identified, he or she may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- To "identify" or "state the identity of" a person other than a natural person means to state its full name and the present or last known address and telephone number of its headquarters. Once such a "person" has been so identified, it may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- Other Terms: To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "make," "model," "model year," "notice," "property damage," "property damage claim," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or plural form, have the same meaning as found in 49 CFR 579.4.

Please respond to the following requests. Please repeat the applicable request verbatim above each response. Identify the source of the information and indicate the last date the information was gathered. Answer each question for each of the Subject Vehicles as well as any other MY 2013-2014 vehicles identified by Nissan that have keyless ignition systems comparable to those in any of the Subject Vehicles. If any vehicles share the same starting system, they may be grouped together when responding. When grouping vehicles for responses please list all vehicles (by model year, make, and model) that each response is for.

1. For each of the subject vehicles, state the date when a starting system that allows the use of an electronic key fob (Key Code Carrying Device) was first introduced in production and state the number of vehicles manufactured by or for your company with that starting system for sale in the U.S. from that date through the date of your response to this letter, broken down by model year.

2. Separately, for each of the Subject Vehicles, explain the operation of the starting system. Include in your response, the location and operation of the key code carrying device and the engine/motor start/stop device.
3. Describe in detail how the Subject Vehicles' engine/motor is started. Include in your response where the electronic key code is sent (i.e. immobilizer or engine control unit ("ECU")), the path the electronic key code takes to enable the driver to start the engine/motor (include a diagram showing the components and how they "connect" to each other), at what point the electronic key code is considered inserted into the starting system, and what conditions need to remain for the electronic key code to remain inserted.
 - a. If the driver remained present in the vehicle, but the KCCD is removed from the vehicle after the vehicle's engine/motor is stopped, can the engine/motor be restarted using the original electronic key code described in item 3 above? If your response is yes, for what period of time, and/or for what number of attempts is this possible?
4. Describe in detail how the Subject Vehicles' engine/motor is stopped or turned off. Include in your response, how hard and long the driver must press the start/stop button, to which device the code or other electrical signal is sent (i.e., immobilizer or engine control unit ("ECU")), and which devices are turned off or deactivated by the ECU (i.e., starter, fuel pump, fuel injection system, etc.). Specify when exactly those devices are turned off or deactivated (i.e. after the engine/motor stop control is pressed to turn off the engine/motor, after the driver's door is opened, etc.)
 - a. Describe any operating conditions during which the driver cannot stop or turn off the engine/motor by using the stop control. These conditions may include, for example, the vehicle's transmission is not in "park" or the vehicle's speed is almost zero mph (or less than a certain speed).
5. Separately for each of the Subject Vehicles, describe how the starting system operates in the following scenarios referencing the descriptions provided in your response to item 1 . In each scenario, indicate when the electronic key code is first present in the Subject Vehicles, when it is recognized by the Subject Vehicles. In each scenario, describe when it is deactivated (engine/motor can no longer be started), and when it is purged from the Subject Vehicles, including the number of seconds it remains activated, if at all, after the driver turns the starting system off. In addition, in each scenario below, identify all audible and visual alerts made by the Subject Vehicles, specifically stating at what point each alert is made, what event triggered each alert, what event or factor each alert is intended to warn the driver of, and the length/duration (audible) or location/wording (visual) of each alert:

- a) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) while the transmission control is in the "park" position. The Subject Vehicle's ignition is turned off (activates the propulsion on/off control). The driver exits the vehicle with the key code carrying device on his person and moves outside of the effective range.
- b) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle is then turned off (activates the propulsion on/off control). The driver exits the Subject Vehicle leaving the key code carrying device in the Subject Vehicle.
- c) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle's engine/motor is then turned off (activates the propulsion system on/off control) with the transmission still in "drive". One minute elapses, after which the driver opens the driver's door and exits the Subject Vehicle, taking the key code carrying device with him outside of the effective range.

Provide responses for the following questions if they have not been previously answered. If the question has been previously answered, identify specifically, by question number and by line, where the response was previously provided:

6. Describe the circumstances under which the electronic code is purged or removed from the Subject Vehicles and/or is no longer recognized by the vehicle. Include in your response, where the key code carrying device must be located in terms of distance from the vehicle and how much time must have elapsed after the vehicle's engine/motor is turned off in order for the electronic key code to be purged or removed from the Subject Vehicles' memory.
7. What is the maximum effective range of the key code carrying device allowed for the electronic key code to be recognized by the Subject Vehicles? Explain the Subject Vehicles' response to the electronic code when they key code carrying device is moved beyond the maximum effective range.
8. Produce a copy of Nissan's complete test procedure and test report concerning FMVSS No. 114 applicable to the Subject Vehicles. Produce all results of Nissan's testing of the Subject Vehicles related to FMVSS No. 114 as well as copies of Nissan's internal sign off sheet(s) indicating compliance with FMVSS No. 114. Produce a copy of Nissan's complete test procedure concerning FMVSS No. 114 for the Subject Vehicles as it was provided to the manufacturer of the Subject Vehicles' starting system.

9. Separately for each of the Subject Vehicles, state the number of each of the following received by or of which Nissan is otherwise aware, which relate to or may relate to the starting system in the Subject Vehicles:
- a) Consumer complaints, including those from fleet operators;
 - b) Field reports, including, but not limited to field technical reports and dealer field reports;
 - c) Reports involving a crash, injury, or fatality;
 - d) Property damage claims;
 - e) Warrantee claims;
 - f) Third-party arbitration proceedings where Nissan is or was a party to the arbitration;
 - g) Lawsuits, both pending and closed, in which Nissan is or was defendant or codefendant; and,
 - h) Vehicle Owner Questionnaires (VOQs) provided to the National Highway Traffic Safety Administration (U.S.) and received or otherwise obtained by Nissan.

If Nissan cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Nissan does not submit one or more requested documents or items of information in response to this information request, Nissan must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

The information requests set forth above are sent to Nissan pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to require a manufacturer to make reports to NHTSA. It constitutes a new request for a report. A timely and complete response by Nissan is required. Nissan's failure to respond promptly and fully to such a request could subject Nissan to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. Under 49 U.S.C. § 30165(a)(3), any person who violates 49 U. S. C. § 30166 is liable for penalties up to and including \$7,000 per day for failure to provide requested information. The maximum for a related series of violations is currently \$17,350,000. 49 C.F.R. § 578.6(a)(3). Other remedies and sanctions are available as well.

Additionally, we are requesting information to improve our understanding of the design standards and safety strategies that your company has in place to address the potential safety risks that may be present with push button start/stop vehicles. Your response to the following questions is optional:

10. What safety information does Nissan request its dealership personnel to provide to customers purchasing a new or used vehicle with push button start/stop?

11. What safety information does Nissan directly provide to a customer purchasing a new or used vehicle with push button start/stop, and through what means (i.e., owner's manual) is this information provided or communicated?

The address for mail or express delivery is: National Highway Traffic Safety Administration, Office of Vehicle Safety Compliance (NVS-221), Room W43-496, 1200 New Jersey Avenue SE, Washington, DC 20590. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to OA-114-140115D in Nissan's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. Nissan's response to this IR is due no later than 30 calendar days from the date indicated on this letter. If Nissan finds that it is unable to provide all of the information requested within the time allotted, Nissan must request an extension from Amina Fisher of my staff at (202) 366-5307 no later than five (5) business days before the response due date. If Nissan is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Nissan then has available, even if an extension has been granted.

If you have any technical questions concerning this matter, please call Amina Fisher of my staff at (202) 366-5307. Your cooperation and assistance is greatly appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Harry Thompson", followed by the text "For. H.T." written in a similar cursive style.

Harry Thompson
Chief, Crash Avoidance Division
Office of Vehicle Safety Compliance

Enclosure – Data Sheets from field inspections

Vehicle 2013 Nissan Cube SL

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 21
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Nissan
 VEHICLE MODEL Cube SL
 VIN JN8AZZKRGDT304427

Automatic transmission (confirm) YES NO
 Activation of starting system (include key type)

proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE
The vehicle can not be turned off unless the transmission is in the P or N position

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>69 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P</u> <u>Shift ↑</u>

If an audible alert sounds does the radio volume change?
 Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated:

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>69 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P</u> <u>Shift ↑</u> <u>orange "key" light</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated. *✓ w/ transmission not in Park*

	AUDIBLE ¹	VISUAL
Interior	dB level: <i>69 dB</i> Duration: <i>continuous</i>	Location: <i>cluster</i>
Exterior	<i>→ tone speeds up when driver exits</i> dB level: <i>68 dB</i> Duration: <i>continuous</i>	Wording: <i>P Shift ↑</i>

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

- YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required
- NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

- YES- Apparent failure, the transmission appears not to have auto shifted to Park
- NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2013 Nissan Juke SL

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 21 13

VEHICLE MODEL YEAR 2013

VEHICLE MAKE Nissan

VEHICLE MODEL Juke SL

VIN JNBAF5MY5DT226013

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>31 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P</u> <u>Shift</u> ↑

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ²		VISUAL
Interior	dB level: <u>31 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P</u> <u>Shift</u> ↑

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

- 6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated. *✓ w/ transmission not in Park*

	AUDIBLE ¹	VISUAL
Interior	dB level: 31 dB Duration: continuous	Location: cluster
Exterior	→ tone speeds up when driver exits dB level: 68 dB Duration: noise continuous	Wording: P ↑ Shift

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2013 Nissan Murano

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 21 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Nissan
 VEHICLE MODEL Murano
 VIN JN8AZ1M0DW0DWS01504

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P</u> <u>Shift ↑</u>

If an audible alert sounds does the radio volume change?

Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>55 dB</u> Duration: <u>3 sec</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Warning no Key</u> <u>P</u> <u>Shift ↑</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Nissan Murano

- 6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated. *✓ w/ transmission not in Park*

	AUDIBLE ¹	VISUAL
Interior	dB level: <i>65 dB</i> Duration: <i>continuous</i>	Location: <i>cluster</i>
Exterior	<i>→ tone speeds up when driver exits</i> dB level: <i>68 dB</i> Duration: <i>continuous</i>	Wording: <i>P</i> <i>Shift ↑</i>

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- **Apparent failure**, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- **Apparent failure**, the transmission appears not to have auto shifted to Park

NO- **PASS**, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2014 Nissan Altima

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 21 13

VEHICLE MODEL YEAR 2014

VEHICLE MAKE Nissan

VEHICLE MODEL Altima

VIN ~~8DBALB2L82EAAA~~ 1N4AL3AP8C113600

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

The vehicle can not be turned off unless the transmission is in the P or N position

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P</u> <u>Shift ↑</u>

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P</u> <u>Shift ↑</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated. *v w/ transmission not in Park*

	AUDIBLE ¹	VISUAL
Interior	dB level: 65 dB Duration: continuous	Location: cluster
Exterior	→ tone speeds up when driver exits vehicle dB level: 68 dB Duration: continuous	Wording: P Shift ↑

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2013 Nissan Sentra SL

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 21 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Nissan
 VEHICLE MODEL Sentra SL
 VIN 3N1A87AP6DL684499

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>59 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P Shift ↑</u>

If an audible alert sounds does the radio volume change?

Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>59 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P Shift ↑</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Nissan Sentra SL

- 6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated. *w/ transmission not in Park*

AUDIBLE ¹		VISUAL
Interior	dB level: 59 dB Duration: continuous	Location: cluster
Exterior	→ tone speeds up when driver exits dB level: 68 dB Duration: continuous	Wording: P ↑ Shift

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2014 Nissan Versa Note

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 21 13
VEHICLE MODEL YEAR 2014
VEHICLE MAKE Nissan
VEHICLE MODEL Versa Note
VIN 3N1CE2CP3EL356300

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE
The vehicle can not be turned off unless the transmission is in the P or N position

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P</u> <u>Shift ↑</u>

If an audible alert sounds does the radio volume change?

Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level: <u>65 dB</u> Duration: <u>continuous</u>	Location: <u>cluster</u>
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>P</u> <u>Shift ↑</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

- 6.1 Start vehicle then turn vehicle off; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated. *w/ transmission not in Park*

AUDIBLE ¹		VISUAL
Interior	dB level: 65 dB Duration: continuous	Location: cluster
Exterior	→ tone speeds up when driver exits vehicle dB level: 68 dB Duration: continuous	Wording: P Shift ↑

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

**E-MAIL AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

John Frooshani
Safety Activities Manager
Government Relations
Subaru of America, Inc./ FUSA
5950 Symphony Woods Drive Suite 410
Columbia, MD 21044

January 28, 2014

NVS-221AFi
OA-114-140115E

Re: Model Year 2013 and 2014 Push-Button Start Vehicles

Dear Mr. Frooshani:

The Office of Vehicle Safety Compliance (“OVSC”) of the National Highway Traffic Safety Administration (“NHTSA”) investigated vehicles manufactured by Subaru to the requirements of Federal Motor Vehicle Safety Standard (“FMVSS”) No. 114, *Theft Protection and Rollaway Prevention*, found at 49 CFR § 571.114. Testing took place at Fitz Auto Mall, in Gaithersburg, Maryland on August 29, 2013.

MY	Make	Model
2013	Subaru	BRZ
2013	Subaru	Forester

OVSC performed tests using scenarios developed according to how we believed consumers could use vehicles equipped with KCCDs, focusing on Sections 5.1 and 5.2 of 49 CFR § 571.114. Since these systems operate differently depending on the manufacturer and, in some cases, the model, we ask that you review the results we obtained. In answering the items below, include any differences noted should your company conduct similar tests and the possible reasons for those differences.

Unless otherwise stated in the text, the following definitions apply to the information request set forth below:

- **Manufacturer:** “Subaru” “you”, or “your” means Subaru including all of its divisions, subsidiaries and affiliated enterprises, including with respect to any of the foregoing within or outside of the United States, any parent corporation, any subsidiary or affiliate, or any subsidiary or affiliate of any parent corporation, and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Subaru.
- **Document(s):** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative findings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, CD-ROMs, compact disks, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by you, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document that contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, “document(s)” also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. The term “document” includes all documents described above whether verified by the manufacturer or not.
- **Consumer Complaint:** A “consumer complaint” is defined as a communication of any kind made by a consumer (or other person) to or with a manufacturer addressed to the

company, an officer thereof, or an entity thereof that handles consumer matters, a manufacturer website that receives consumer complaints, a manufacturer electronic mail system that receives such information at the corporate level, or that are otherwise received by a unit within the manufacturer that receives consumer inquiries or complaints, including telephonic complaints, expressing dissatisfaction with a product, or relating the unsatisfactory performance of a product, or any actual or potential defect in a product, or any even that allegedly was caused by any actual or potential defect in a product.

- **Effective Range:** “Effective Range” means the maximum distance the Key Code Carrying Device can be from the Subject Vehicle where the vehicle is able to recognize the electronic key code associated with that particular vehicle.
- **Electronic Code:** “Electronic Code” shall have the meaning used in the definition of “key” in 49 CFR § 571.114, S.4.
- **Key:** “Key” means the electronic code which, when inserted into the starting system by electronic means, enables the vehicle operator to activate the engine or motor [See 49 CFR § 571.114, S.4].
- **Key Code Carrying Device (KCCD):** “Key Code Carrying Device” means the physical device which is capable of electronically transmitting the key to the vehicle starting system without physical connection, other than its presence in the vehicle, between the device and the vehicle (i.e. the key fob).
- **Starting System:** “Starting System” means the vehicle system used in conjunction with the key code and the engine/motor start control to activate the engine, motor, or other system which provides propulsion to the motor vehicle.
- **Subject Vehicles:** “Subject Vehicles” means the vehicles listed after the first paragraph of this letter.
- “Starting the vehicle’s motor” means the driver uses the motor start control to turn on power is “on” to the motor, resulting in input to the vehicle’s wheels and vehicle movement as a result of the driver applying the accelerator pedal.
- “Stopping the vehicle’s engine or motor” means the driver uses the engine/motor stop control to turn off power to the engine or motor and no input to the vehicle’s wheels or vehicle movement will result from the driver application of the accelerator pedal.
- The term “you” or “your” refers to Subaru.
- The singular includes the plural; the plural includes the singular. The masculine gender includes the feminine and neutral genders; and the neutral gender includes the masculine and feminine genders. “And” as well as “or” shall be construed either disjunctively or

conjunctively, to bring within the scope of this information request all responses that might otherwise be construed to be outside its scope. "Each" shall be construed to include "every" and "every" shall be construed to include "each". "Any" shall be construed to include "all" and "all" shall be construed to include "any". The use of a verb in any tense shall be construed as the use of the verb in a past or present tense, whenever necessary to bring within the scope of the document request all responses which might otherwise be construed to be outside its scope.

- The term "relate to" or "relating to" means constituting, comprising, containing, setting forth, showing, disclosing, describing, explaining, summarizing, concerning, or referring to, directly or indirectly.
- To "identify" or "state the identity of" a natural person means to state his/her full name, title, office, present work address and telephone number, and the name, address and telephone number of his/her present or last known employer, if any. Once an individual has been so identified, he or she may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- To "identify" or "state the identity of" a person other than a natural person means to state its full name and the present or last known address and telephone number of its headquarters. Once such a "person" has been so identified, it may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- Other Terms: To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "make," "model," "model year," "notice," "property damage," "property damage claim," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or plural form, have the same meaning as found in 49 CFR 579.4.

Please respond to the following requests. Please repeat the applicable request verbatim above each response. Identify the source of the information and indicate the last date the information was fathered. Answer each question for each of the Subject Vehicles as well as any other MY 2013-2014 vehicles identified by Subaru that have keyless ignition systems comparable to those in any of the Subject Vehicles. If any vehicles share the same starting system, they may be grouped together when responding. When grouping vehicles for responses please list all vehicles (by model year, make, and model) that each response is for.

1. For each of the subject vehicles, state the date when a starting system that allows the use of an electronic key fob (Key Code Carrying Device) was first introduced in production and state the number of vehicles manufactured by or for your company with that starting system for sale in the U.S. from that date through the date of your response to this letter, broken down by model year.

2. Separately, for each of the Subject Vehicles, explain the operation of the starting system. Include in your response, the location and operation of the key code carrying device and the engine/motor start/stop device.

3. Describe in detail how the Subject Vehicles' engine/motor is started. Include in your response where the electronic key code is sent (i.e. immobilizer or engine control unit ("ECU")), the path the electronic key code takes to enable the driver to start the engine/motor (include a diagram showing the components and how they "connect" to each other), at what point the electronic key code is considered inserted into the starting system, and what conditions need to remain for the electronic key code to remain inserted.
 - a. If the driver remained present in the vehicle, but the KCCD is removed from the vehicle after the vehicle's engine/motor is stopped, can the engine/motor be restarted using the original electronic key code described in item 3 above? If your response is yes, for what period of time, and/or for what number of attempts is this possible?

4. Describe in detail how the Subject Vehicles' engine/motor is stopped or turned off. Include in your response, how hard and long the driver must press the start/stop button, to which device the code or other electrical signal is sent (i.e., immobilizer or engine control unit ("ECU")), and which devices are turned off or deactivated by the ECU (i.e., starter, fuel pump, fuel injection system, etc.). Specify when exactly those devices are turned off or deactivated (i.e. after the engine/motor stop control is pressed to turn off the engine/motor, after the driver's door is opened, etc.)
 - a. Describe any operating conditions during which the driver cannot stop or turn off the engine/motor by using the stop control. These conditions may include, for example, the vehicle's transmission is not in "park" or the vehicle's speed is almost zero mph (or less than a certain speed).

5. Separately for each of the Subject Vehicles, describe how the starting system operates in the following scenarios referencing the descriptions provided in your response to item 1. In each scenario, indicate when the electronic key code is first present in the Subject Vehicles, when it is recognized by the Subject Vehicles. In each scenario, describe when it is deactivated (engine/motor can no longer be started), and when it is purged from the Subject Vehicles, including the number of seconds it remains activated, if at all, after the driver turns the starting system off. In addition, in each scenario below, identify all audible and visual alerts made by the Subject Vehicles, specifically stating at what point each alert is made, what event triggered each alert, what event or factor each alert is intended to warn the driver of, and the length/duration (audible) or location/wording (visual) of each alert:

- a) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) while the transmission control is in the "park" position. The Subject Vehicle's ignition is turned off (activates the propulsion on/off control). The driver exits the vehicle with the key code carrying device on his person and moves outside of the effective range.
- b) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle is then turned off (activates the propulsion on/off control). The driver exits the Subject Vehicle leaving the key code carrying device in the Subject Vehicle.
- c) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle's engine/motor is then turned off (activates the propulsion system on/off control) with the transmission still in "drive". One minute elapses, after which the driver opens the driver's door and exits the Subject Vehicle, taking the key code carrying device with him outside of the effective range.

Provide responses for the following questions if they have not been previously answered. If the question has been previously answered, identify specifically, by question number and by line, where the response was previously provided:

6. Describe the circumstances under which the electronic code is purged or removed from the Subject Vehicles and/or is no longer recognized by the vehicle. Include in your response, where the key code carrying device must be located in terms of distance from the vehicle and how much time must have elapsed after the vehicle's engine/motor is turned off in order for the electronic key code to be purged or removed from the Subject Vehicles' memory.
7. What is the maximum effective range of the key code carrying device allowed for the electronic key code to be recognized by the Subject Vehicles? Explain the Subject Vehicles' response to the electronic code when they key code carrying device is moved beyond the maximum effective range.
8. Produce a copy of Subaru's complete test procedure and test report concerning FMVSS No. 114 applicable to the Subject Vehicles. Produce all results of Subaru's testing of the Subject Vehicles related to FMVSS No. 114 as well as copies of Subaru's internal sign off sheet(s) indicating compliance with FMVSS No. 114. Produce a copy of Subaru's complete test procedure concerning FMVSS No. 114 for the Subject Vehicles as it was provided to the manufacturer of the Subject Vehicles' starting system.

9. Separately for each of the Subject Vehicles, state the number of each of the following received by or of which Subaru is otherwise aware, which relate to or may relate to the starting system in the Subject Vehicles:
- a) Consumer complaints, including those from fleet operators;
 - b) Field reports, including, but not limited to field technical reports and dealer field reports;
 - c) Reports involving a crash, injury, or fatality;
 - d) Property damage claims;
 - e) Warrantee claims;
 - f) Third-party arbitration proceedings where Subaru is or was a party to the arbitration;
 - g) Lawsuits, both pending and closed, in which Subaru is or was defendant or codefendant; and,
 - h) Vehicle Owner Questionnaires (VOQs) provided to the National Highway Traffic Safety Administration (U.S.) and received or otherwise obtained by Subaru.

If Subaru cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Subaru does not submit one or more requested documents or items of information in response to this information request, Subaru must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

The information requests set forth above are sent to Subaru pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to require a manufacturer to make reports to NHTSA. It constitutes a new request for a report. A timely and complete response by Subaru is required. Subaru's failure to respond promptly and fully to such a request could subject Subaru to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. Under 49 U.S.C. § 30165(a)(3), any person who violates 49 U. S. C. § 30166 is liable for penalties up to and including \$7,000 per day for failure to provide requested information. The maximum for a related series of violations is currently \$17,350,000. 49 C.F.R. § 578.6(a)(3). Other remedies and sanctions are available as well.

10. What safety information does Subaru request its dealership personnel to provide to customers purchasing a new or used vehicle with push button start/stop?

11. What safety information does Subaru directly provide to a customer purchasing a new or used vehicle with push button start/stop, and through what means (i.e., owner's manual) is this information provided or communicated?

The address for mail or express delivery is: National Highway Traffic Safety Administration, Office of Vehicle Safety Compliance (NVS-221), Room W43-496, 1200 New Jersey Avenue SE, Washington, DC 20590. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to OA-114-140115E in Subaru's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. Subaru's response to this IR is due no later than 30 calendar days from the date indicated on this letter. If Subaru finds that it is unable to provide all of the information requested within the time allotted, Subaru must request an extension from Amina Fisher of my staff at (202) 366-5307 no later than five (5) business days before the response due date. If Subaru is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Subaru then has available, even if an extension has been granted.

If you have any technical questions concerning this matter, please call Amina Fisher of my staff at (202) 366-5307. Your cooperation and assistance is greatly appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Harry Thompson" followed by "for A.T." written in a smaller, less legible script.

Harry Thompson
Chief, Crash Avoidance Division
Office of Vehicle Safety Compliance

Enclosure – Data Sheets from field inspections

Vehicle 2013 Subaru BRZ

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 29 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Subaru
 VEHICLE MODEL BRZ
 VIN JF1ZCACHD2601147

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)
proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level:	Location: <u>cluster</u>
	Duration:	
Exterior	<u>NONE</u>	Wording: <u>(No Key tiltale)</u>
	dB level:	
	Duration:	<u>NOTHING SAYING SHIFT TO P</u>

If an audible alert sounds does the radio volume change?
 Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior	dB level:	Location: <u>cluster</u>
	Duration:	
Exterior	<u>NONE</u>	Wording: <u>(No Key tiltale)</u>
	dB level:	
	Duration:	<u>NOTHING SAYING SHIFT TO P</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Subaru BRZ

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: <i>63 dB</i> Duration: <i>continuous</i>	Location: <i>cluster</i>
Exterior	dB level: <i>63 dB</i> Duration: <i>continuous</i>	Wording: <i>(No Key telltale)</i> <i>NOTHING SAYING SHIFT TO P</i>

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES ^{electronic} Key remain in ignition system until vehicle placed in Park
(can always be restarted until then)

Vehicle 2013 Subaru BRZ

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level:		Location:
Duration:		NONE
Exterior	NONE	Wording:
dB level:		
Duration:		

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level:	first beep 71 dB,	Location: cluster
Duration:	next two unmeasurably low	Wording: No Key (telltale)
Exterior	3 beeps	
dB level:		
Duration:	NONE	

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Subaru Forester

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 08 05 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Subaru
 VEHICLE MODEL Forester
 VIN JF2SJAPC1E H437964

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob

push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE
no auto shift to park feature described

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver’s window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		Location: <u>msg center</u>
dB level:		
Duration:		
Exterior	<u>NONE</u>	Wording: <u>Shift to Park</u>
dB level:		<u>displayed for 1 sec</u>
Duration:		

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
 (Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior		Location: <u>msg center</u>
dB level:		
Duration:		
Exterior	<u>NONE</u>	Wording: <u>Shift to Park</u>
dB level:		<u>displayed for 1 sec</u>
Duration:		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Subaru Forester

6.1 Start vehicle then turn vehicle off; wait ~30 sec again. ^{y w/ transmission not in Park} TECH 1 exit vehicle and close door. Describe any alerts activated.

AUDIBLE ¹		VISUAL
Interior		
dB level:		Location: <i>msg center</i>
Duration:		
Exterior	<i>NONE</i>	Wording: <i>Door is open</i>
dB level:		
Duration:		<i>NOTHING SAYING SHIFT TO P</i>

7 ^{only audible alert seemed to be}
TECH 2 attempt to push the vehicle. Is the vehicle free to roll?
^{foot for door open (same alert while vehicle running)}

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES *push button had red light when turned off not in park*

msg center screens stayed on



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

E-MAIL AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Abbas Saadatt
Vice President
Vehicle Safety and Compliance Liaison Office
Toyota Motor Engineering and Manufacturing North America, Inc.
19001 South Western Avenue
Mail Stop S-104
Torrance, CA 90501

January 28, 2014

NVS-221AFi
OA-114-140115F

Re: Model Year 2013 and 2014 Push-Button Start Vehicles

Dear Mr. Saadatt

The Office of Vehicle Safety Compliance (“OVSC”) of the National Highway Traffic Safety Administration (“NHTSA”) investigated vehicles manufactured by Toyota to the requirements of Federal Motor Vehicle Safety Standard (“FMVSS”) No. 114, *Theft Protection and Rollaway Prevention*, found at 49 CFR § 571.114. Testing took place at Fitz Auto Mall, in Gaithersburg, Maryland on September 4, 2013.

MY	Make	Model
2012	Toyota	RAV4
2013	Toyota	Avalon
2013	Toyota	Highlander
2013	Toyota	Prius C
2013	Toyota	Prius V

OVSC performed tests using scenarios developed according to how we believed consumers could use vehicles equipped with KCCDs, focusing on Sections 5.1 and 5.2 of 49 CFR § 571.114. Since these systems operate differently depending on the manufacturer and, in some cases, the model, we ask that you review the results we obtained. In answering the items below, include any differences noted should your company conduct similar tests and the possible reasons for those differences.

Unless otherwise stated in the text, the following definitions apply to the information request set forth below:

- **Manufacturer:** “Toyota” “you”, or “your” means Toyota including all of its divisions, subsidiaries and affiliated enterprises, including with respect to any of the foregoing within or outside of the United States, any parent corporation, any subsidiary or affiliate, or any subsidiary or affiliate of any parent corporation, and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Toyota.
- **Document(s):** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative findings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, CD-ROMs, compact disks, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by you, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document that contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, “document(s)” also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. The term “document” includes all documents described above whether verified by the manufacturer or not.
- **Consumer Complaint:** A “consumer complaint” is defined as a communication of any kind made by a consumer (or other person) to or with a manufacturer addressed to the

company, an officer thereof, or an entity thereof that handles consumer matters, a manufacturer website that receives consumer complaints, a manufacturer electronic mail system that receives such information at the corporate level, or that are otherwise received by a unit within the manufacturer that receives consumer inquiries or complaints, including telephonic complaints, expressing dissatisfaction with a product, or relating the unsatisfactory performance of a product, or any actual or potential defect in a product, or any even that allegedly was caused by any actual or potential defect in a product.

- **Effective Range:** “Effective Range” means the maximum distance the Key Code Carrying Device can be from the Subject Vehicle where the vehicle is able to recognize the electronic key code associated with that particular vehicle.
- **Electronic Code:** “Electronic Code” shall have the meaning used in the definition of “key” in 49 CFR § 571.114, S.4.
- **Key:** “Key” means the electronic code which, when inserted into the starting system by electronic means, enables the vehicle operator to activate the engine or motor [See 49 CFR § 571.114, S.4].
- **Key Code Carrying Device (KCCD):** “Key Code Carrying Device” means the physical device which is capable of electronically transmitting the key to the vehicle starting system without physical connection, other than its presence in the vehicle, between the device and the vehicle (i.e. the key fob).
- **Starting System:** “Starting System” means the vehicle system used in conjunction with the key code and the engine/motor start control to activate the engine, motor, or other system which provides propulsion to the motor vehicle.
- **Subject Vehicles:** “Subject Vehicles” means the vehicles listed after the first paragraph of this letter.
- “Starting the vehicle’s motor” means the driver uses the motor start control to turn on power is “on” to the motor, resulting in input to the vehicle’s wheels and vehicle movement as a result of the driver applying the accelerator pedal.
- “Stopping the vehicle’s engine or motor” means the driver uses the engine/motor stop control to turn off power to the engine or motor and no input to the vehicle’s wheels or vehicle movement will result from the driver application of the accelerator pedal.
- The term “you” or “your” refers to Toyota.
- The singular includes the plural; the plural includes the singular. The masculine gender includes the feminine and neutral genders; and the neutral gender includes the masculine and feminine genders. “And” as well as “or” shall be construed either disjunctively or

conjunctively, to bring within the scope of this information request all responses that might otherwise be construed to be outside its scope. "Each" shall be construed to include "every" and "every" shall be construed to include "each". "Any" shall be construed to include "all" and "all" shall be construed to include "any". The use of a verb in any tense shall be construed as the use of the verb in a past or present tense, whenever necessary to bring within the scope of the document request all responses which might otherwise be construed to be outside its scope.

- The term "relate to" or "relating to" means constituting, comprising, containing, setting forth, showing, disclosing, describing, explaining, summarizing, concerning, or referring to, directly or indirectly.
- To "identify" or "state the identity of" a natural person means to state his/her full name, title, office, present work address and telephone number, and the name, address and telephone number of his/her present or last known employer, if any. Once an individual has been so identified, he or she may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- To "identify" or "state the identity of" a person other than a natural person means to state its full name and the present or last known address and telephone number of its headquarters. Once such a "person" has been so identified, it may thereafter be identified by name alone so long as reference is made to the paragraph in which the complete identity is given.
- Other Terms: To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "make," "model," "model year," "notice," "property damage," "property damage claim," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or plural form, have the same meaning as found in 49 CFR 579.4.

Please respond to the following requests. Please repeat the applicable request verbatim above each response. Identify the source of the information and indicate the last date the information was gathered. Answer each question for each of the Subject Vehicles as well as any other MY 2013-2014 vehicles identified by Toyota that have keyless ignition systems comparable to those in any of the Subject Vehicles. If any vehicles share the same starting system, they may be grouped together when responding. When grouping vehicles for responses please list all vehicles (by model year, make, and model) that each response is for.

1. For each of the subject vehicles, state the date when a starting system that allows the use of an electronic key fob (Key Code Carrying Device) was first introduced in production and state the number of vehicles manufactured by or for your company with that starting system for sale in the U.S. from that date through the date of your response to this letter, broken down by model year.

2. Separately, for each of the Subject Vehicles, explain the operation of the starting system. Include in your response, the location and operation of the key code carrying device and the engine/motor start/stop device.

3. Describe in detail how the Subject Vehicles' engine/motor is started. Include in your response where the electronic key code is sent (i.e. immobilizer or engine control unit ("ECU")), the path the electronic key code takes to enable the driver to start the engine/motor (include a diagram showing the components and how they "connect" to each other), at what point the electronic key code is considered inserted into the starting system, and what conditions need to remain for the electronic key code to remain inserted.
 - a. If the driver remained present in the vehicle, but the KCCD is removed from the vehicle after the vehicle's engine/motor is stopped, can the engine/motor be restarted using the original electronic key code described in item 3 above? If your response is yes, for what period of time, and/or for what number of attempts is this possible?

4. Describe in detail how the Subject Vehicles' engine/motor is stopped or turned off. Include in your response, how hard and long the driver must press the start/stop button, to which device the code or other electrical signal is sent (i.e., immobilizer or engine control unit ("ECU")), and which devices are turned off or deactivated by the ECU (i.e., starter, fuel pump, fuel injection system, etc.). Specify when exactly those devices are turned off or deactivated (i.e. after the engine/motor stop control is pressed to turn off the engine/motor, after the driver's door is opened, etc.)
 - a. Describe any operating conditions during which the driver cannot stop or turn off the engine/motor by using the stop control. These conditions may include, for example, the vehicle's transmission is not in "park" or the vehicle's speed is almost zero mph (or less than a certain speed).

5. Separately for each of the Subject Vehicles, describe how the starting system operates in the following scenarios referencing the descriptions provided in your response to item 1 . In each scenario, indicate when the electronic key code is first present in the Subject Vehicles, when it is recognized by the Subject Vehicles. In each scenario, describe when it is deactivated (engine/motor can no longer be started), and when it is purged from the Subject Vehicles, including the number of seconds it remains activated, if at all, after the driver turns the starting system off. In addition, in each scenario below, identify all audible and visual alerts made by the Subject Vehicles, specifically stating at what point each alert is made, what event triggered each alert, what event or factor each alert is intended to warn the driver of, and the length/duration (audible) or location/wording (visual) of each alert:

- a) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) while the transmission control is in the "park" position. The Subject Vehicle's ignition is turned off (activates the propulsion on/off control). The driver exits the vehicle with the key code carrying device on his person and moves outside of the effective range.
- b) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle is then turned off (activates the propulsion on/off control). The driver exits the Subject Vehicle leaving the key code carrying device in the Subject Vehicle.
- c) The driver enters the vehicle with the key code carrying device on his person. The driver turns the Subject Vehicle's engine/motor on (activates the propulsion system on/off control) and places the transmission in "drive". The Subject Vehicle's engine/motor is then turned off (activates the propulsion system on/off control) with the transmission still in "drive". One minute elapses, after which the driver opens the driver's door and exits the Subject Vehicle, taking the key code carrying device with him outside of the effective range.

Provide responses for the following questions if they have not been previously answered. If the question has been previously answered, identify specifically, by question number and by line, where the response was previously provided:

6. Describe the circumstances under which the electronic code is purged or removed from the Subject Vehicles and/or is no longer recognized by the vehicle. Include in your response, where the key code carrying device must be located in terms of distance from the vehicle and how much time must have elapsed after the vehicle's engine/motor is turned off in order for the electronic key code to be purged or removed from the Subject Vehicles' memory.
7. What is the maximum effective range of the key code carrying device allowed for the electronic key code to be recognized by the Subject Vehicles? Explain the Subject Vehicles' response to the electronic code when they key code carrying device is moved beyond the maximum effective range.
8. Produce a copy of Toyota's complete test procedure and test report concerning FMVSS No. 114 applicable to the Subject Vehicles. Produce all results of Toyota's testing of the Subject Vehicles related to FMVSS No. 114 as well as copies of Toyota's internal sign off sheet(s) indicating compliance with FMVSS No. 114. Produce a copy of Toyota's complete test procedure concerning FMVSS No. 114 for the Subject Vehicles as it was provided to the manufacturer of the Subject Vehicles' starting system.

9. Separately for each of the Subject Vehicles, state the number of each of the following received by or of which Toyota is otherwise aware, which relate to or may relate to the starting system in the Subject Vehicles:
- a) Consumer complaints, including those from fleet operators;
 - b) Field reports, including, but not limited to field technical reports and dealer field reports;
 - c) Reports involving a crash, injury, or fatality;
 - d) Property damage claims;
 - e) Warranty claims;
 - f) Third-party arbitration proceedings where Toyota is or was a party to the arbitration;
 - g) Lawsuits, both pending and closed, in which Toyota is or was defendant or codefendant; and,
 - h) Vehicle Owner Questionnaires (VOQs) provided to the National Highway Traffic Safety Administration (U.S.) and received or otherwise obtained by Toyota.

If Toyota cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Toyota does not submit one or more requested documents or items of information in response to this information request, Toyota must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

The information requests set forth above are sent to Toyota pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to require a manufacturer to make reports to NHTSA. It constitutes a new request for a report. A timely and complete response by Toyota is required. Toyota's failure to respond promptly and fully to such a request could subject Toyota to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. Under 49 U.S.C. § 30165(a)(3), any person who violates 49 U. S. C. § 30166 is liable for penalties up to and including \$7,000 per day for failure to provide requested information. The maximum for a related series of violations is currently \$17,350,000. 49 C.F.R. § 578.6(a)(3). Other remedies and sanctions are available as well.

Additionally, we are requesting information to improve our understanding of the design standards and safety strategies that your company has in place to address the potential safety risks that may be present with push button start/stop vehicles. Your response to the following questions is optional:

10. What safety information does Toyota request its dealership personnel to provide to customers purchasing a new or used vehicle with push button start/stop?

11. What safety information does Toyota directly provide to a customer purchasing a new or used vehicle with push button start/stop, and through what means (i.e., owner's manual) is this information provided or communicated?

The address for mail or express delivery is: National Highway Traffic Safety Administration, Office of Vehicle Safety Compliance (NVS-221), Room W43-496, 1200 New Jersey Avenue SE, Washington, DC 20590. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to OA-114-140115F in Toyota's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. Toyota's response to this IR is due no later than 30 calendar days from the date indicated on this letter. If Toyota finds that it is unable to provide all of the information requested within the time allotted, Toyota must request an extension from Amina Fisher of my staff at (202) 366-5307 no later than five (5) business days before the response due date. If Toyota is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Toyota then has available, even if an extension has been granted.

If you have any technical questions concerning this matter, please call Amina Fisher of my staff at (202) 366-5307. Your cooperation and assistance is greatly appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Harry Thompson" followed by "for H.T." in a cursive style.

Harry Thompson
Chief, Crash Avoidance Division
Office of Vehicle Safety Compliance

Enclosure – Data Sheets from field inspections

Vehicle 2013 Toyota Rav 4

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 09 04 13
 VEHICLE MODEL YEAR 2013
 VEHICLE MAKE Toyota
 VEHICLE MODEL Rav 4
 VIN 2T3DFREY0DWN076201

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	<u>NONE</u>
Duration:			
Exterior	<u>NONE</u>		
dB level:			
Duration:			

If an audible alert sounds does the radio volume change?

Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- *electronic key code appears to still be in vehicle*
 (Complete 6.1)

NO- *electronic key code does not appear to still be in the vehicle*
 (Complete 6.1 - 8)

AUDIBLE ¹		VISUAL	
Interior		Location:	<u>cluster</u>
dB level:		Wording:	<u>Key telltale flashes</u>
Duration:			
Exterior	<u>NONE</u>		
dB level:			
Duration:			<u>NOTHING SAYING SHIFT TO P</u>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ²	VISUAL
Interior	dB level: <i>58 dB</i> Duration: <i>continuous</i>	Location: <i>cluster</i>
Exterior	dB level: <i>67 dB</i> Duration: <i>continuous</i>	Wording: <i>Key telltale flashes orange</i>

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES

Vehicle 2013 Toyota Rav 4

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: Duration:	Location:
Exterior	<i>NONE</i>	Wording: <i>NONE</i>
	dB level: Duration:	

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior	dB level: Duration: <i>NONE</i>	Location: <i>cluster</i>
Exterior	dB level: <i>58 dB</i> Duration: <i>3 beeps</i>	Wording: <i>Key fob icon flashes orange</i>

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Toyota Avalon

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 09 04 13
VEHICLE MODEL YEAR 2013
VEHICLE MAKE Toyota
VEHICLE MODEL Avalon
VIN ~~4T1DB~~ 4T1BD1EB2D0011525

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)
proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior	dB level: <u>52 dB</u> Duration: <u>1 beep</u>	Location: <u>cluster</u>	
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Power on</u> <u>Shift to Park</u>	<u>alternate</u>

If an audible alert sounds does the radio volume change?
 Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL	
Interior	dB level: Duration:	Location: <u>cluster</u>	
Exterior	dB level: <u>NONE</u> Duration:	Wording: <u>Shift to Park to start</u> <u>brake (see note)</u> <u>parking brake</u> <u>tailgate</u>	

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: 60 dB Duration: continuous	Location: cluster
Exterior	dB level: 75 dB Duration: continuous	Wording: Key not detected ⚠ Shift to Park Pos alternate

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES * though parking brake bulb was illuminated at one point, the parking brake did not appear to have engaged

Vehicle 2013 Toyota Avalon

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:			
Duration:			
Exterior	NONE	Wording:	NONE
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	cluster
dB level:			
Duration:	NONE		
Exterior		Wording:	Key not detected
dB level:	60 dB		
Duration:	3 beeps		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Toyota Highlander

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 09 04 13

VEHICLE MODEL YEAR 2013

VEHICLE MAKE Toyota

VEHICLE MODEL Highlander

VIN 5TDDK3EHXD0256399

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)
proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior	dB level: Duration:	Location:	
Exterior	<u>NONE</u>	Wording:	<u>NONE</u>
	dB level: Duration:		

If an audible alert sounds does the radio volume change?
 Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- *electronic key code appears to still be in vehicle*
(Complete 6.1)

NO- *electronic key code does not appear to still be in the vehicle*
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL	
Interior	dB level: Duration:	Location:	
Exterior	<u>NONE</u>	Wording:	<u>NONE</u>
	dB level: Duration:		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

	AUDIBLE ¹	VISUAL
Interior	dB level: 58 dB Duration: continuous	Location: (center) message center
Exterior	dB level: 70 dB Duration: continuous	Wording: Key not detected Shift to P range

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES when turned off while not in Park the green light on the start/stop button remains illuminated

the key never appears to leave the vehicle (vehicle can always be restarted)

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	NONE
Duration:			
Exterior	NONE		
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	(center) message center
dB level:	NONE	Wording:	Key not detected
Duration:			
Exterior			
dB level:	65 dB		
Duration:	3 bups		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Toyota Prius c

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 09 04 13
VEHICLE MODEL YEAR 2013
VEHICLE MAKE Toyota
VEHICLE MODEL Prius c
VIN JTDKDT833D1036934

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)
proximity key fob
push button

Is there an installed rollaway prevention feature? YES, describe NO UNSURE

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		
dB level:		Location: (center) message center
Duration:		
Exterior	NONE	Wording: Shift to Park ? alternate Power on
dB level:		
Duration:		

If an audible alert sounds does the radio volume change?
 Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior		
dB level:	48 dB	Location: (center) message center
Duration:	1 beep	
Exterior		Wording: Key not detected
dB level:	NONE	Shift to P to Start duration 2 min
Duration:		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

AUDIBLE ¹		VISUAL
Interior	dB level: 58 dB	Location: (center) message center Wording: Key not detected Shift to P to start duration 2min
	Duration: continuous until door opened then closed	
Exterior	dB level: 71 dB	
	Duration: continuous	

7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES "Shift to P to start"
↳ restarts w/o key (up to 2min)

will not restart in N

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	NONE
Duration:			
Exterior	NONE		
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	(center) message center
dB level:		Wording:	Key not detected
Duration:	NONE		
Exterior			
dB level:	68 dB		
Duration:	3 beeps		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Toyota Prius v

FMVSS 114 – Theft Protection and Rollaway Prevention

TEST DATE 09 04 13
VEHICLE MODEL YEAR 2013
VEHICLE MAKE Toyota
VEHICLE MODEL Prius v
VIN JTDZN3EU0D3270646

Automatic transmission (confirm) YES NO

Activation of starting system (include key type)

proximity key fob
push button * P position is a button (others are on shifter)

Is there an installed rollaway prevention feature? YES, describe NO UNSURE
when the vehicle is turned off while not in Park, the transmission auto-
shifts itself into Park

- 1 Position vehicle on relatively flat grade; TECH 1 enter vehicle with key fob
- 2 Start vehicle; roll down driver's window; turn radio on; shift to Drive; release Parking Brake
- 3 Pass fob out of open window to TECH 2 (make sure to move out of range of vehicle)
- 4 Turn vehicle off; wait ~30 sec (some vehicles have emergency restart feature) Describe any alerts activated

AUDIBLE ¹		VISUAL
Interior		Location: (center) display center
dB level:		
Duration:		
Exterior	NONE	Wording: * showed shifter selection moving to Park
dB level:		
Duration:		

If an audible alert sounds does the radio volume change?

- Reduced volume Radio turns off No change to radio volume

- 5 Shift vehicle to Neutral (do not go to Park in the meantime)
- 6 Attempt to restart vehicle in Neutral. Does the vehicle restart? Describe any alerts activated.

YES- electronic key code appears to still be in vehicle
(Complete 6.1)

NO- electronic key code does not appear to still be in the vehicle
(Complete 6.1 - 8)

AUDIBLE ¹		VISUAL
Interior		Location:
dB level:		
Duration:		
Exterior	NONE	Wording: NONE
dB level:		
Duration:		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Toyota Prius v

- 6.1 Start vehicle then turn vehicle off with transmission not in Park; wait ~30 sec again. TECH 1 exit vehicle and close door. Describe any alerts activated.

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	<i>NONE</i>
Duration:	<i>NONE</i>		
Exterior			
dB level:			
Duration:			

- 7 TECH 2 attempt to push the vehicle. Is the vehicle free to roll?

YES- Apparent failure, the vehicle's transmission does not appear to have shifted to park as required

NO- Go to 8, the vehicle appears to have locked itself in Park

- 8 Does the Parking Brake appear to be on? (Check for Parking Brake Light)

YES- Apparent failure, the transmission appears not to have auto shifted to Park

NO- PASS, the vehicle's transmission appears to have auto shifted to Park

NOTES *putting the vehicle in Park (or having the vehicle put itself in Park) also engages the parking (emergency) brake*

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size

Vehicle 2013 Toyota Prius ✓

- 9 TECH 1 enter the vehicle with key fob
- 10 Start the vehicle in Park; Shift out of Park, then back into Park
- 11 With the propulsion system still activated, exit the vehicle leaving the key fob behind. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	NONE
Duration:			
Exterior	NONE		
dB level:			
Duration:			

- 12 TECH 1 re-enter vehicle
- 13 Turn the vehicle off, then back on while still in Park; Shift out of Park, then back into Park
- 14 With the propulsion system still activated, exit the vehicle with the key fob. Describe any alerts activated

AUDIBLE ¹		VISUAL	
Interior		Location:	
dB level:		Wording:	NONE
Duration:	NONE		
Exterior			
dB level:	62 dB		
Duration:	3 beeps		

PHOTOGRAPHS: vehicle front; vehicle rear; certification placard; tire placard; tires showing make, model, and size