



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

AUG 12 2015

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Paula Davis, Vice President
Corporate Affairs & Communications
Harman International
400 Atlantic Street
Stamford, CT 06901

NVS-215kh
EQ15-005
15V-461

Dear Ms. Davis:

The National Highway Traffic Safety Administration's (NHTSA) Office of Defects Investigation (ODI), Recall Management Division (RMD), is conducting an equipment query (EQ) investigation in relation to certain Harman Kardon Infotainment head units. As you likely know, on July 23, 2015, Fiat Chrysler Automobiles (FCA) filed a defect information report (Part 573 report) notifying NHTSA that certain model year (MY) 2013-2015 Chrysler, Dodge, Jeep, and Ram vehicles equipped with Harman Kardon UConnect RA3 or RA4 radios contain a safety defect and are being recalled to remedy that defect. According to FCA, software security vulnerabilities in these vehicles could allow unauthorized third-party access to, and manipulation of, networked vehicle control systems. Manipulation of the vehicle control systems could lead to exposing the driver, the vehicle occupants or any other individual or vehicle with proximity to the affected vehicle to a potential risk of crash and attendant injury. This matter was assigned recall number 15V-461. A copy of the notification is enclosed for your information.

The purpose of this letter is not only to make you aware of FCA's decision, but to request information from Harman International about its equipment, as well as its supply and distribution to other motor vehicle manufacturers and on the replacement market, to ascertain whether there are additional motor vehicles that may potentially share similar vulnerabilities and for which additional safety recalls may be warranted. It is also to remind you of Harman's responsibilities under Federal Law as a supplier of motor vehicle equipment.

Questions

Please provide written responses to the questions below. Before your response to each question, please repeat the question asked.

1. Identify by common trade name, each infotainment system with connected vehicle capabilities, and with comparable functionality to the UConnect 8.4AN/RA4 and 8.4A/RA3 model radios, that Harman International supplies, distributes, or has supplied or otherwise introduced into U.S. commerce, to, or for use by, vehicle

manufacturers for use in U.S. vehicles. Separately, for each subject infotainment system you identified starting with Calendar Year (CY) 2010, state the following:

- a. The vehicle manufacturer to which Harman International supplied that system;
- b. Harman Kardon's contact(s) at each vehicle manufacturer you identified as well as their complete contact information including phone number(s) and email address(es);
- c. Any other identification information for that system(s) (e.g., part or serial numbers); and
- d. Quantity supplied.

Provide the table in Microsoft Access 2003, 2007, or a compatible format, entitled "EQ15_005_ManufacturerPurchaser List."

2. Identify by common trade name, each infotainment system with connected vehicle capabilities, and with comparable functionality to the UConnect 8.4AN/RA4 and 8.4A/RA3 model radios, that Harman International supplies, distributes, or has supplied, distributed, or otherwise introduced into U.S. commerce. Separately, for each subject infotainment system you identified starting with CY 2010, state the following:

- a. The names of any distributors, dealers, or retailers for those systems;
- b. Harman Kardon's contact(s) at each, as well as their complete contact information including U.S. mailing address, phone number(s), and email address(es);
- c. Any other identification information for that system(s) (e.g., brand or trade names separate from the common trade name, part or serial numbers, etc.); and
- d. Quantity supplied.

Provide the table in Microsoft Access 2003, 2007, or a compatible format, entitled "EQ15_005_AftermarketPurchaser List."

3. As to the UConnect system on the recalled FCA vehicles, identify and describe:
 - a. The operating system (RIM, Android...etc.);
 - b. Released production software revisions with implemented security solutions;
 - c. System capabilities and features;
 - d. All System-on-Chip microprocessors with direct or gated access to vehicle CAN communications;
 - e. All system specification requirements documents including a description of the potential security attack surface, built-in system alarm channels, system security testing and evaluation, secure boot architecture, trusted execution hardware features (such as memory isolation, peripheral isolation, interrupt separation, watchdog protection...etc.), any flash tamper detection modules or firmware-over-the-air capabilities, cloud storage utilities, and secure key (public, secret...etc.) storage; and
 - f. Identify all cryptographic algorithms or cryptographic security engines (CSE), high assurance boot techniques, and potential side channel attack mechanisms

including active and passive countermeasures.

4. For each system you identified in response to questions 1 or 2, identify and describe:
 - a. The operating system (RIM, Android...etc.);
 - b. Released production software revisions with implemented security solutions;
 - c. System capabilities and features;
 - d. All System-on-Chip microprocessors with direct or gated access to vehicle CAN communications;
 - e. All system specification requirements documents including a description of the potential security attack surface, built-in system alarm channels, system security testing and evaluation, secure boot architecture, trusted execution hardware features (such as memory isolation, peripheral isolation, interrupt separation, watchdog protection...etc.), any flash tamper detection modules or firmware-over-the-air capabilities, cloud storage utilities, and secure key (public, secret...etc.) storage; and
 - f. Identify all cryptographic algorithms or cryptographic security engines (CSE), high assurance boot techniques, and potential side channel attack mechanisms including active and passive countermeasures.

5. What is Harman's assessment of the FCA defect information report as it applies to Harman Kardon's UConnect systems and products? Does it concur with the assessment that the product contains the identified vulnerabilities? Why or why not? Provide any supporting documentation or materials that Harman International believes would assist NHTSA in understanding Harman's assessment including Harman's assessment of whether other software security vulnerabilities potentially exist in infotainment systems Harman International supplied to other manufacturers.

Responsibilities

Harman International is reminded that pursuant to Federal law, a manufacturer of motor vehicle equipment, whether original or replacement equipment, must notify NHTSA, within five (5) business days, when it first learns a safety defect or a noncompliance with a FMVSS exists in its equipment. The content of that notification is specified in 49 U.S.C. 573.6, Defect and Noncompliance Information Report. In the case of a defect or noncompliance in original equipment installed in the vehicles of more than one manufacturer, notification to NHTSA must be made by the original equipment manufacturer as to the equipment item, and by each vehicle manufacturer as to those vehicles it manufactured in which the defective equipment was installed. In the case of original equipment installed in the vehicles of a single motor vehicle manufacturer, either the vehicle manufacturer or the original equipment manufacturer may file the requisite notification.

Should Harman International decide any of its infotainment systems contain a safety defect, it must not only file the required notification and report with NHTSA, but must conduct a safety recall, including timely notification and offer of free remedy, to its purchasers. In advance of issuing its owner notification letters, your company must submit a draft of its letter to NHTSA for review. Your company is reminded that this letter must meet the

requirements of 49 CFR 577.5, "Notification pursuant to a manufacturer's decision." We are also reminding your company that it is required to notify dealers and distributors as required by 49 CFR 577.13.

This letter is being sent to your company 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. Your company's failure to respond promptly and fully to this letter could subject your company 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. If your company claims that any of the information or documents provided in response to this information request constitute confidential commercial material within the meaning of 5 U.S.C. § 552(b)(4), or are protected from disclosure pursuant to 18 U.S.C. § 1905, your company must submit supporting information together with the materials that are the subject of the confidentiality request, in accordance with 49 CFR Part 512, as amended (69 Fed. Reg. 21409 et seq; April 21, 2004), to the Office of Chief Counsel (NCC-111), National Highway Traffic Safety Administration, Room W41-227, 1200 New Jersey Avenue, S.E., Washington, D.C. 20590. Your company is required to submit two copies of the documents containing allegedly confidential information (except only one copy of blueprints) and one copy of the documents from which information claimed to be confidential has been deleted. Please remember that the word "CONFIDENTIAL" must appear at the top of each page containing information claimed to be confidential, and the information must be clearly identified in accordance with 5 U.S.C. § 512.6.

Your company's written response must be submitted to this office within three weeks of receiving this letter. You may mail your response or email it, so long as it is received by the due date – **September 3, 2015**. In your response, please be certain to include a reference to this matter's identification number which is **EQ15-005**.

If you have any questions concerning this matter, please contact Kareem Habib at (202) 366-8703 or by e-mail at Kareem.Habib@DOT.gov. You may supply your response directly to Mr. Habib if it does not contain confidential business information. Otherwise it must be submitted pursuant to the instructions above.

Sincerely,



Jennifer Timian, Chief
Recall Management Division
Office of Defects Investigation
Enforcement

Enclosure

Part 573 Safety Recall Report

15V-461

Manufacturer Name : Chrysler (FCA US LLC)

Submission Date : JUL 28,2015

NHTSA Recall No. : 15V-461

Manufacturer Recall No. : R40



Manufacturer Information :

Manufacturer Name : Chrysler (FCA US LLC)

Address : 800 Chrysler Drive

CIMS 482-00-91 Auburn Hills MI 48326-2757

Company phone : 1-800-853-1403

Population :

Number of potentially involved : 1,416,376

Estimated percentage with defect : 0

Vehicle Information :

Vehicle : 2013-2015 Ram 1500

Vehicle Type :

Body Style : PICKUP TRUCK

Power Train : NR

Descriptive Information : Certain 2013-2015 MY Ram 1500 vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

The Number potentially involved will be updated on July 24, 2015.

Production Dates : JUN 20, 2012 - JUL 23, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

Not sequential VINs

Vehicle : 2013-2015 Ram 2500

Vehicle Type :

Body Style : PICKUP TRUCK

Power Train : NR

Descriptive Information : Certain 2013-2015 MY Ram 2500 vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JUN 20, 2012 - JUL 23, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

 Not sequential VINs

Vehicle : 2013-2015 Ram 3500

Vehicle Type :

Body Style : PICKUP TRUCK

Power Train : NR

Descriptive Information : Certain 2013-2015 MY Ram 3500 vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JUN 20, 2012 - JUL 23, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

 Not sequential VINs

Vehicle : 2013-2015 Ram 4500/5500

Vehicle Type :

Body Style : PICKUP TRUCK

Power Train : NR

Descriptive Information : Certain 2013-2015 MY Ram 4500/5500 vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JUN 20, 2012 - JUL 23, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

 Not sequential VINs

Vehicle : 2015-2015 Chrysler 300

Vehicle Type :

Body Style : 4-DOOR

Power Train : NR

Descriptive Information : Certain 2015 MY Chrysler 300 vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JAN 24, 2014 - JUL 23, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

 Not sequential VINs

Vehicle : 2015-2015 Dodge Charger

Vehicle Type :

Body Style : 4-DOOR

Power Train : NR

Descriptive Information : Certain 2015 MY Dodge Charger vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JAN 24, 2014 - JUL 23, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

Not sequential VINs

Vehicle : 2015-2015 Dodge Challenger

Vehicle Type :

Body Style : 2-DOOR

Power Train : NR

Descriptive Information : Certain 2015 MY Dodge Challenger vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JAN 24, 2014 - JUL 23, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

Not sequential VINs

Vehicle : 2014-2015 Jeep Grand Cherokee

Vehicle Type :

Body Style : SUV

Power Train : NR

Descriptive Information : Certain 2014-2015 MY Jeep Grand Cherokee vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JAN 08, 2013 - JUL 23, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

Not sequential VINs

Vehicle : 2014-2015 Dodge Durango

Vehicle Type :

Body Style : SUV

Power Train : NR

Descriptive Information : Certain 2014-2015 MY Dodge Durango vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JAN 08, 2013 - JUL 23, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

Not sequential VINs

Vehicle : 2014-2015 Jeep Cherokee

Vehicle Type :

Body Style : SUV

Power Train : NR

Descriptive Information : Certain 2014-2015 MY Jeep Cherokee vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JAN 10, 2013 - JUL 16, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

Not sequential VINs

Vehicle : 2015-2015 Chrysler 200

Vehicle Type :

Body Style :

Power Train : NR

Descriptive Information : Certain 2015 MY Chrysler 200 vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : JAN 08, 2014 - JUL 02, 2015

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

Not sequential VINs

Vehicle : 2013-2015 Dodge Viper

Vehicle Type :

Body Style : 2-DOOR

Power Train : NR

Descriptive Information : Certain 2013-2015 MY Dodge Viper vehicles.

The production dates provided under the Production Dates section are not representative of actual production dates. We will provide this data on July 24, 2015.

Production Dates : SEP 17, 2012 - JUN 25, 2014

VIN (Vehicle Identification Number) Range

Begin : NR

End : NR

Not sequential VINs

Description of Defect :

Description of the Defect : Some 2013-2015 MY vehicles equipped with RA3 or RA4 model radios have certain software security vulnerabilities which could allow unauthorized third-party access to some networked vehicle control systems. Exploitation of the software security vulnerabilities required extensive technical knowledge, physical access to a subject vehicle and a long period of time to write applicable code.

A successful exploit of this security vulnerability could result in unauthorized remote modification and control of vehicle systems. FCA US has not made a determination that this security vulnerability constitutes a Defect as defined by The Motor Vehicle Safety Act 49 USC Sec. 30102 or 49 CFR 573. Although FCA US has not determined that a Defect exists, it has decided to conduct a remedial campaign as a safety recall in the interest of protecting its customers.

FMVSS 1 :NR

FMVSS 2 :NR

Description of the Safety Risk : Exploitation of the software security vulnerabilities required unauthorized access to the vehicle's internal network and the subsequent manipulation of vehicle control systems. This manipulation could lead to exposing the driver, the vehicle occupants or any other individual or vehicle with proximity to the affected vehicle to a potential risk of injury.

The vulnerabilities and potential risk were mitigated by FCA US beginning on July 16, 2015 with an immediate software security update and were further prevented on July 22, 2015 when the cellular provider remotely closed long range wireless access. Due to the cellular provider's remote closure of long range wireless access, the potential risk of illegal and unauthorized access to any vehicle systems is limited to short range wireless communications with an effective range of approximately 30 meters. This lower level of risk, based on the increased difficulty to gain access, only exists in approximately the 3% of owners who subscribe to mobile hot spot.

Description of the Cause : NR

Identification of Any Warning that can Occur : NR

Supplier Identification :**Component Manufacturer**

Name : Harman/Becker Automotive SYS

Address : 39001 W. 12 Mile Road

Farmington Hills MICHIGAN 48331

Country : United States

Chronology :

Please see the attached supplemental information titled "FCA US LLC Chronology - Select 2013-2015 Vehicles RA3 RA4 - 07232015.pdf".

Description of Remedy :

Description of Remedy Program : On July 16, 2015, FCA US made available a software update for immediate installation that eliminates all identified wireless vulnerabilities (both long and short range) for the affected vehicles. Customers can either directly download the update to their own USB drive from <http://www.driveuconnect.com/software-update/> or take their vehicle to a FCA US dealer for immediate installation. The software will be provided to all affected owners at no charge. On July 22, 2015, access to the previously open port on the radio was remotely closed by the cellular provider, immediately eliminating any risk of long-range, illegal and unauthorized remote "hacking."

To further ensure customer piece of mind, FCA US will conduct a Voluntary Safety Recall on all affected vehicles by mailing owners a USB drive with the updated software for customer installation. Owners requiring assistance can have the software installed by their dealer at no charge to the customer.

FCA US has a longstanding policy and practice of reimbursing owners who have incurred the cost of repairing a problem that subsequently becomes the subject of a field action. To ensure consistency, FCA US, as part of the owner letter, will request that customers send the original receipt and/or other adequate proof of payment to the company for confirmation of the expense.

How Remedy Component Differs from Recalled Component : NR

Identify How/When Recall Condition was Corrected in Production : NR

Recall Schedule :

Description of Recall Schedule : FCA released the dealer remedy instructions on July 25, 2015.

FCA will provide the owner notification schedule when established.

Planned Dealer Notification Date : JUL 25, 2015 - JUL 25, 2015

Planned Owner Notification Date : NR - NR

* NR - Not Reported