**Technical Report Documentation Page**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1. Report No.**  DOT HS XXX XXX | **2. Government Accession No.** | | **3. Recipient’s Catalog No.** | |
| **4. Title and Subtitle**  Cost and Weight Analysis of Vehicle-to-Vehicle Communications | | | **5. Report Date**  August 16, 2018 | |
| **6. Performing Organization Code** | |
| **7. Author**  Ricardo Inc. | | | **8. Performing Organization Report No.** | |
| **9. Performing Organization Name and Address**  Detroit Technical Center  Van Buren Twp., MI  48111 USA | | | **10. Work Unit No. (TRAIS)** | |
| **11. Contract or Grant No.**  DTNH2216D00037/0001 | |
| **12. Sponsoring Agency Name and Address**  National Highway Traffic Safety Administration  Evaluation Division; National Center for Statistics and Analysis  1200 New Jersey Avenue SE.  Washington, DC 20590 | | | **13. Type of Report and Period Covered**  NHTSA Technical Report | |
| **14. Sponsoring Agency Code**  NSA-310 | |
| **15. Supplementary Notes** | | | | |
| **16. Abstract**  The US Department of Transportation (US DOT), National Highway Traffic Safety Administration (NHTSA), is developing a regulatory framework that encourages the safe development, testing and deployment of advanced driver assist systems (ADAS) and automated vehicle technology. A key feature of these technologies is vehicle-to-vehicle (V2V) communication which allows wireless exchange of information about the speed and position of surrounding vehicles to avoid crashes, ease traffic congestion, and improve the environment.  In 2014, NHTSA announced an intent to mandate V2V technology in new light-duty vehicles. In December of 2016, NHTSA released a notice of proposed rulemaking (NPRM) to mandate V2V technology in new light-duty vehicles (proposed as Federal Motor Vehicle Safety Standard (FMVSS) No. 150, “V2V Communications,” and to standardize the message and format of V2V transmissions to IEEE 802.11p-based DSRC (dedicated short-range communication). FMVSS No. 150 anticipates that implementation of the new standard will enable vehicle manufacturers to develop safety applications that employ V2V communications as an input. The purpose of the current study is to determine the product piece, total system cost, incremental consumer price, and weight of the equipment used to enable Vehicle to Vehicle communication as proposed in the NPRM for FMVSS No. 150.  V2V is the dynamic wireless exchange of data between nearby vehicles that offers the opportunity for significant safety improvements by exchanging anonymous, vehicle-based data regarding, at a minimum, position, speed, and location. V2V communications enable a vehicle to sense threats and hazards with a 360-degree awareness of the position of other vehicles and the potential threat or hazard they present, calculate risk and, if appropriate, issue driver advisories or warnings to take pre-emptive actions that avoid and mitigate crashes. The V2V functions and components are typically integrated with other vehicle communications and telematics equipment. Components unique to the V2V system include an external communications module, antenna upgrades, associated mounting hardware, and connecting cables. | | | | |
| **17. Key Words**  Vehicle to Vehicle Communication, | | **18. Distribution Statement**  This report is free of charge from the NHTSA Web site at [www.nhtsa.dot.gov](http://www.nhtsa.dot.gov) | | |
| **19. Security Classif. (Of this report)**  Unclassified | **20. Security Classif. (Of this page)**  Unclassified | | **21. No. of Pages**  36 | **22. Price** |

**Form DOT F 1700.7** (8-72)