



BAR OBD Inspection System

Data Acquisition Device Specification

<Version 2.5>

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1. Introduction

The objective of this document is to lay the foundation for the final BAR OBD Inspection System (OIS) Data Acquisition Device (DAD) Specification. The BAR's intent is to document all of the BAR's Hardware, Firmware and Software requirements for the DAD, used to support California's Smog Check Inspection Program, within this document.

1.1. Purpose

The intended audience for this specification is the OBD Community that will develop the DAD Hardware, Firmware and Software. Where this document is specific, it is because these are areas where the BAR and/or stakeholders in the Smog Check Program are aware of shortcomings in other OBDII implementations and the BAR is attempting to ensure uniform and consistent tests, to the greatest extent possible, as required by the Health and Safety Code Section 44036(a).

1.2. Scope

The BAR OIS will consist of a computer with attached bar code scanner, printer and DAD. The BAR OIS shall run "Windows 7, 32 bit" with a minimum of Service Pack 1 (SP1) as an operating system, and use a minimum of Internet Explorer version 9 as the Web Browser or an operating system and browser approved by the BAR. The BAR OIS will access the BAR's Next Generation Electronic Transmission Web Application (NWA) to conduct Smog Check Inspections. The BAR OIS will reside in various Smog Check stations across the State, and other locations such as Fleet, Referee, the BAR Roadside, and the BAR Headquarter sites. The BAR OIS will be used by licensed technicians performing Smog Check Inspections and other station personnel.

The primary function of the BAR OIS is to perform Smog Check Inspections.

1.3. Definitions, Acronyms, and Abbreviations

The definitions of all terms, acronyms, abbreviations, and references required to properly interpret this BAR OBD Inspection System Data Acquisition Device Specification are included within the text of this document.

2. On Board Diagnostic (OBD) Data Acquisition Device (DAD) Overview

The On Board Diagnostic (OBD) Data Acquisition Device (DAD) connects to the BAR OBD Inspection System (OIS) computer for the purpose of retrieving OBD second generation (OBDII) information from a vehicle. The BAR OIS shall run "Windows 7, 32 bit" with a minimum of Service Pack 1 (SP1) as an operating system, and use a minimum of Internet Explorer version 9 as the Web Browser or an operating system and browser approved by the BAR. The BAR OIS will connect to a BAR authorized website to access and run the BAR's Next Generation Electronic Transmission (NGET) Web Application (NWA). The NWA will determine and control the Smog Check Inspection. The DAD must be functional in a standard automotive repair environment and thus be resistant to shock, vibration, and environmental exposure in order to ensure reliability and accuracy. The BAR OIS will have standard connections and interfaces to allow interchangeability of different brands of bar code scanners, printers, and BAR certified DADs. The DAD is comprised of the hardware, firmware and software drivers necessary to meet the requirements of this specification. The DAD is intended to receive instructions from the NWA. The DAD

will collect OBD data from the vehicle and carry out all tasks in accordance with this specification and report it to the NWA.

This specification does not apply to the computer, bar code scanner, or printer, which are not part of this specification, and are not to be included as a part of this specification. This specification covers the DAD which is comprised of the hardware, firmware, and software (drivers, etc.) to receive instructions from the NWA and carry out all tasks to obtain data from the vehicle and report it back to the NWA in accordance with this specification. Portions of the DAD are expected to be software (e.g., drivers) that will be installed on the BAR OIS computer.

3. Requirements

3.1. General Requirements

- 3.1.1. The DAD shall be compatible with typical automotive service operating environments.
- 3.1.2. The DAD shall be compatible with the BAR OIS operating system.
- 3.1.3. The DAD shall be compatible with the BAR OIS Web Browser.
- 3.1.4. The DAD hardware, including fasteners and enclosures, shall be corrosion resistant under conditions normally encountered in the automotive repair environment for the period of the warranty.
- 3.1.5. The DAD hardware, including fasteners and enclosures, shall not transmit heat that could cause burning of the user.
- 3.1.6. The BAR Certified DAD Vendor shall supply the hardware, firmware and software drivers necessary to meet the requirements of this specification.
- 3.1.7. The BAR Certified DAD Vendor shall at a minimum supply the DAD in a hardwired configuration.
- 3.1.8. The BAR Certified DAD Vendor shall be responsible to update the hardware and/or firmware and/or software to conform to this specification.
 - 3.1.8.1. The updates shall be provided to the State and Stations at no cost.
 - 3.1.8.2. The normal scheduled updates shall be provided to the State and Stations on a quarterly basis, at a minimum.
 - 3.1.8.3. The BAR may choose to waive the normal scheduled update.
 - 3.1.8.4. The updates shall be implemented on all BAR Certified DAD Vendors' devices within two (2) weeks of receiving approval from the BAR.
 - 3.1.8.5. If a problem is detected with the DAD that seriously impacts the California Smog Check Program, the BAR Certified DAD Vendor shall provide an emergency update, on a schedule mandated by the BAR.

- 3.1.9. The DAD shall utilize a mechanism to update the DAD hardware, firmware and software as needed to meet this specification.
- 3.1.9.1. The BAR Certified DAD Vendor shall document the mechanism for the update of the DAD hardware/firmware/software that is agreed to by BAR.
- 3.1.10. The DAD Vendor shall supply a programming interface compatible with the BAR OIS operating system (e.g., APIs, development drivers).
- 3.1.11. The DAD Vendor shall ensure proper and functioning communication between the DAD software and the BAR's NWA.
- 3.1.11.1. Requirement Deleted.
- 3.1.11.2. Requirement Deleted.
- 3.1.12. The BAR Certified DAD Vendor shall provide technical support to the purchasers of the DAD via a toll free number.
- 3.1.13. The BAR Certified DAD Vendor shall provide technical support to the purchasers of the DAD via a public facing Website that offers tips on how to diagnose DAD problems, frequently asked questions (FAQs) on how the DAD operates and how to resolve any support issues, ability to create a support request(s) to resolve any DAD incidents, as well as information on how and where to purchase a DAD.
- 3.1.14. The BAR Certified DAD Vendor shall provide technical support Monday through Friday (excluding California State holidays) from 8 a.m. - 5 p.m. Pacific Standard Time (Business Hours).
- 3.1.15. The BAR Certified DAD Vendor shall respond to DAD customer inquiries within two (2) Business Hours of receipt of inquiry.
- 3.1.16. The BAR Certified DAD Vendor shall provide technical support to DAD customers within two (2) Business Hours of receipt of request.
- 3.1.17. The BAR Certified DAD Vendor shall provide to the purchaser a warranty that the DAD will be free of defects in materials and workmanship for a period of one (1) year from the date of delivery.
- 3.1.18. The BAR Certified DAD Vendor shall provide, within 3 days of BAR's request, DAD sales reports that lists the DADs sold. This report must list the DAD unique, sequential serial number, customer name, address, and phone number.
- 3.1.19. The BAR Certified DAD Vendor must offer the DAD for sale directly to the public without requiring the purchase of any other item or device.
- 3.1.20. The BAR Certified DAD Vendor shall supply the DAD purchaser with a copy of the Disclosure Agreement (Appendix B of this Specification).
- 3.1.20.1. The BAR Certified DAD Vendor shall obtain the signature of the purchaser acknowledging the provisions of the Disclosure Agreement.

- 3.1.20.2. The BAR Certified DAD Vendor shall provide BAR with a copy of the signed Disclosure Agreement.

3.2. Specific Requirements

Standards

- 3.2.1. If a conflict exists between what this specification requires and what the Society of Automotive Engineers / International Organization for Standardization (SAE/ISO) standard requires, this specification overrides the SAE/ISO specification.
- 3.2.1.1. To the extent the DAD Vendor knows or has reason to believe that an element of this specification conflicts with an SAE or ISO requirement and that implementation in accordance with this specification will adversely impact the ability of the DAD to properly interface with vehicles, the DAD Vendor shall identify the conflict and the known or suspected associated adverse impact to BAR to request clarification as to how the specification shall be implemented.
- 3.2.2. The DAD shall meet all SAE J1978, (OBD II Scan Tool) requirements, as detailed in SAE J1978 "OBD II Scan Tool -- Equivalent to ISO/DIS 15031-4: December 14, 2001", published 2002-04-30, excluding 7.5, 7.6, 8.1 and 8.2, 11.5.
- 3.2.3. Requirement Deleted.
- 3.2.4. If wireless communication is used for any portion of the communication between the OIS Computer and the vehicle's OBDII port, the DAD shall be FCC Part 15 Class B, approved.
- 3.2.5. The DAD shall be compliant with SAE J1979, "E/E Diagnostic Test Modes", published 2010-09-28.
- 3.2.6. The DAD shall be compliant with SAE J1962, APR 2002.

Log Files

- 3.2.7. The BAR Certified DAD Vendor shall collect required log data and may collect additional BAR Certified DAD Vendor specified log data.
- 3.2.7.1. The BAR Certified DAD Vendor shall collect DAD-Vehicle Communications Log data.
- 3.2.7.1.1. The DAD-Vehicle Communications Log data shall be sent to the NWA.
- 3.2.7.1.2. Requirement Deleted.
- 3.2.7.1.3. The DAD-Vehicle Communications Log data shall be in standard ASCII text that is compatible with Microsoft Excel/Word 2003/2007/2010.
- 3.2.7.1.4. The first line of the DAD-Vehicle Communications Log data shall contain the version of the software collecting the log data. Example:
"DAD_DLL_VERSION_1.0".

3.2.7.1.5. The remaining lines of the DAD-Vehicle Communications Log data shall be the communication data as sent and received from the vehicle's OBDII system.

3.2.7.1.6. Since this is log data, the data may be separated by spaces.

3.2.7.1.7. Delimiting is not required, but may be done.

3.2.7.1.8. Upon request to the BAR from the BAR Certified DAD Vendor, the BAR will supply the DAD-Vehicle Communications Log data.

3.2.7.2. The BAR Certified DAD Vendor may choose to collect separate, additional log data from the DAD if needed for diagnostic purposes.

3.2.7.2.1. If collected, the separate, additional log data shall be sent to the NWA.

The NWA will collect the log data, encrypt the log data, and place the encrypted log file(s) on the local computer.

3.2.7.3. The BAR Certified DAD Vendor may retrieve the log file(s) from the local computer.

3.2.7.4. The log data shall not be encrypted by the DAD.

3.2.7.5. The DAD shall end collecting of Log Data when indicated by the NWA.

3.2.7.6. Requirement Deleted.

Testable Vehicles

3.2.8. The DAD shall access the OBDII SAE J1979 defined data from all gasoline fueled vehicles required to have OBDII systems, including passenger, light and medium duty trucks and shall report the data to the BAR NWA.

3.2.9. The DAD shall access the OBDII SAE J1979 defined data from all diesel fueled vehicles required to have OBDII systems, including passenger, light and medium duty trucks – 1998 and newer up to and including fourteen thousand (14,000) Gross Vehicle Weight Rating (GVWR), and shall report the data to the BAR NWA.

3.2.10. The DAD shall access the OBDII SAE J1979 defined data from all alternate fueled (e.g., LPG, CNG, Hydrogen, Methanol, any ratio of ethanol / gasoline including E85) vehicles required to have OBDII systems, including passenger, light and medium duty trucks and shall report the data to the BAR NWA.

3.2.11. The DAD shall access the OBDII SAE J1979 defined data from all hybrid vehicles required to have OBDII systems and shall report the data to the BAR NWA.

Connectivity Rate

Regarding the following Connectivity Rate requirements, the BAR understands and acknowledges that on a per car basis, successful communication may not be technically possible. This may be due to physically broken components required for communications such as diagnostic connectors or wiring. For the purposes of determining the connectivity rate and to the extent identifiable, the BAR intends to

exclude these vehicles from the calculation. However, to the extent technically feasible, the BAR does not intend to exclude vehicles from the calculation that, by design, are not necessarily within applicable SAE/ISO specifications. The BAR Certified DAD Vendor will be expected to provide a solution that can accommodate noncompliant vehicles to the extent feasible and the BAR will exclude specific vehicles only upon request by the BAR Certified DAD Vendor and approval by the BAR with data supporting that the specific vehicles are noncompliant and there is no technically feasible solution (e.g., there is no change possible in the DAD software or hardware that would allow communication to successfully occur, necessary hardware or software changes to accommodate the vehicle can be shown to cause communication problems with other compliant vehicles, etc.). The BAR may publish Connectivity Rates of any and all BAR Certified DAD Vendor(s).

- 3.2.12. The BAR Certified DAD Vendor shall provide the necessary hardware, firmware and software to ensure the Model Year (MY) 1996 – 1999 non-diesel fueled vehicles maintain a connectivity rate of ninety-nine point nine zero percent (99.90%), which includes vehicles noncompliant with the required SAE and ISO standards as specified by the ARB OBDII regulation (title 13, California Code of Regulations, sections 1968.1 and 1968.2). The BAR may adjust this connectivity rate in zero point one zero percent (0.10%) increments to ensure uniform and consistent tests. There will be two connectivity rates which are both set initially to 99.90% but can be adjusted independently of each other. One rate is for priority one data. The other rate is for all other data. For example, priority one data could be set to 99.90% while the connectivity rate for all other data could be set to 99.10%. Priority one data is defined under the “Successful Communication” section.
- 3.2.13. The BAR Certified DAD Vendor shall provide the necessary hardware, firmware and software to ensure the MY 1998 – 2003 diesel fueled vehicles maintain a connectivity rate of ninety-nine point nine zero percent (99.90%), which includes vehicles noncompliant with the required SAE and ISO standards as specified by the ARB OBDII regulation (title 13, California Code of Regulations, sections 1968.1 and 1968.2). The BAR may adjust this connectivity rate in zero point one zero percent (0.10%) increments to ensure uniform and consistent tests. There will be two connectivity rates which are both set initially to 99.90% but can be adjusted independently of each other. One rate is for priority one data. The other rate is for all other data. For example, priority one data could be set to 99.90% while the connectivity rate for all other data could be set to 99.10%. Priority one data is defined under the “Successful Communication” section.
- 3.2.14. The BAR Certified DAD Vendor shall provide the necessary hardware, firmware and software to ensure the MY 2000 and later non-diesel fueled vehicles maintain a connectivity rate of ninety-nine point nine zero percent (99.90%), which includes vehicles noncompliant with the required SAE and ISO standards as specified by the ARB OBDII regulation (title 13, California Code of Regulations, sections 1968.1 and 1968.2). The BAR may adjust this connectivity rate in zero point one zero percent (0.10%) increments to ensure uniform and consistent tests. There will be two connectivity rates which are both set initially to 99.90% but can be adjusted independently of each other. One rate is for priority one data. The other rate is for all other data. For example, priority one data could be set to 99.90% while the connectivity rate for all other data could be set to 99.10%. Priority one data is defined under the “Successful Communication” section.
- 3.2.15. The BAR Certified DAD Vendor shall provide the necessary hardware, firmware and software to ensure the MY 2004 and later diesel fueled vehicles maintain a connectivity rate of ninety-nine point nine zero percent (99.90%), which includes providing the necessary accommodations for vehicles noncompliant with the required SAE and ISO standards as specified by the ARB OBDII regulation (title 13, California Code of Regulations, sections

1968.1 and 1968.2). The BAR may adjust this connectivity rate in zero point one zero percent (0.10%) increments to ensure uniform and consistent tests. There will be two connectivity rates which are both set initially to 99.90% but can be adjusted independently of each other. One rate is for priority one data. The other rate is for all other data. For example, priority one data could be set to 99.90% while the connectivity rate for all other data could be set to 99.10%. Priority one data is defined under the "Successful Communication" section.

- 3.2.16. The DAD connectivity rates shall be based on OBDII certified vehicles subject to the California Smog Check Program.
- 3.2.17. The DAD shall not exclude an entire vehicle make, model or manufacturer, even though the overall connectivity rate is satisfied (e.g., Toyota Camry or Ferrari).
- 3.2.18. For a vehicle to be exempted from the Connectivity Rate calculation, the BAR Certified DAD Vendor must submit a request to and obtain approval from the BAR.
 - 3.2.18.1. The submitted request must contain the technical reasons and supporting data that explains why the vehicle did not communicate.

Successful Communication

A successful communication, for purposes of this document (i.e., for determining a successful event in calculating the Connectivity Rate per the previous sections), shall be defined as when:

- 3.2.19. The DAD retrieves per SAE/ISO specifications and this document, all the data supported on a vehicle and requested by the NWA from all OBD-related electronic control units (ECU)s on the vehicle. Note: there are two standards depending on the data. Priority one standard shown below, and all other data.
 - 3.2.19.1. Priority one data is the following data: Mode \$01 PID \$00, Mode \$01 PID \$01, Mode \$01 PID \$1C, Mode \$03, Mode \$09 info type \$00, Mode \$09 info type \$01, Mode \$09 info type \$02, and Mode \$0A.
 - 3.2.19.2. For the purposes of this requirement, 'supported on a vehicle' shall be defined as data/parameters indicated as supported by one or more ECUs on the vehicle and sent by each applicable ECU to the DAD upon receiving a request per the SAE/ISO standards and this document.
- 3.2.20. The DAD accurately transmits the data requested by the NWA.

Communication Protocols

- 3.2.21. The DAD shall be capable of communicating with vehicles using ISO 9141-2:1994 amended 1:1996, (5 baud initialization, 10.4 kbaud compatible) communication protocol.
 - 3.2.21.1. The DAD shall perform initialization in a manner compliant with the document "Volkswagen Group of America K-Line Communication Description", available at http://www.obdclearinghouse.com/index.php?body=get_file&id=1380 or available from BAR upon request.

- 3.2.21.2. Regardless of whether the received keywords from the vehicle are \$08 08 (indicating P2 min = 25msec) or \$94 94 (indicating P2 min = 0 msec), the DAD must use a P2min of 0 msec (e.g., must be prepared to accept responses from a vehicle using keywords \$08 08 that are received before 25 msec).
- 3.2.22. The DAD shall be capable of communicating with vehicles using SAE J1850, June 2006, Variable Pulse Width (10.4 kbaud compatible) communication protocol.
- 3.2.22.1. Vehicles that respond to SAE J1850 requests from the DAD with either the correct header bytes of \$48 6B addr where 'addr' is the address of the responding ECU or the incorrect header bytes of \$68 6B addr shall be considered J1850 compliant by the DAD and vehicle ECU responses with either header bytes shall be accepted as valid vehicle responses.
- 3.2.23. The DAD shall be capable of communicating with vehicles using SAE J1850, June 2006, Pulse Width Modulation (41.6 kbaud compatible) communication protocol.
- 3.2.23.1. Vehicles that respond to SAE J1850 requests from the DAD with either the correct header bytes of \$41 6B addr where 'addr' is the address of the responding ECU or the incorrect header bytes of \$61 6B addr shall be considered J1850 compliant by the DAD and vehicle ECU responses with either header bytes shall be accepted as valid vehicle responses.
- 3.2.24. The DAD shall be capable of communicating with vehicles using ISO 14230-4: 2000 Keyword protocol 2000 (both 5-baud 'slow' initialization and 10.4 kbaud 'fast' initialization) communication protocol.
- 3.2.24.1. The DAD shall perform initialization in a manner compliant with the document "Volkswagen Group of America K-Line Communication Description" referenced above.
- 3.2.24.2. The DAD shall perform initialization in a manner compliant with the document "Keyword Protocol 2000 Data Link Layer Recommended Practice", Version 1.5, dated October 1, 1997 and available from BAR upon request.
- 3.2.24.3. With respect to 'fast' initialization, regardless of keywords received from the vehicle (i.e., compliant keywords per ISO 14230-4 section 4.4 StartCommunication service, noncompliant keywords, or even missing keywords), if the DAD receives a positive StartCommunication response from the vehicle, the DAD shall use the functionality of keyword \$8FE9 (decimal 2025) for messages sent to the vehicle and attempt further communications as if compliant keywords were received.
- 3.2.25. The DAD shall be capable of communicating with vehicles using ISO 15765-4: 2005 Controller Area Network (CAN) (11 bit header, 500 kbaud compatible) communication protocol.
- 3.2.25.1. The DAD shall implement CAN in a manner consistent with the document "A summary of the most common mistakes when implementing the OBD on CAN

(ISO15765-4) initialization sequence” written by DaimlerChrysler AG, Mercedes Car Group Vehicle Diagnostic Engineering and available from the BAR upon request.

3.2.26. The DAD shall be capable of communicating with vehicles using ISO 15765-4: 2005 CAN (29 bit header, 500 kbaud compatible) communication protocol.

3.2.27. The DAD determination of the communication protocol with the vehicle shall be automatic and fully integrated into the DAD hardware, firmware and software.

Initialization Sequence:

3.2.28. The DAD shall have a default communication protocol sequence for the order in which the various communication protocols are attempted when establishing communication with the vehicle.

3.2.28.1. The BAR Certified DAD Vendor shall select the default communication protocol sequence because it has been demonstrated in-use to have high success.

3.2.28.2. The default communication protocol sequence shall be provided to the BAR in writing prior to DAD Certification.

3.2.29. Prior to initialization, the DAD may be sent the preferred communication protocol sequence by the NWA. If the DAD is sent the preferred communication protocol sequence, the DAD shall first attempt to establish communication with the vehicle using this preferred communication protocol sequence rather than with the default communication protocol sequence.

3.2.29.1. If the DAD is not sent a preferred communication protocol sequence, the DAD shall use the default communication protocol sequence.

3.2.29.2. If the DAD is sent a preferred communication protocol sequence, and the vehicle fails to communicate with the DAD, the DAD shall use the default communication protocol sequence.

3.2.30. The DAD, in coordination with the NWA, shall conduct initialization in a manner that maximizes the successful communication with vehicles. Measures to be considered to achieve this include, but are not limited to:

3.2.30.1. Altering the sequence for initialization after unsuccessful first attempts such as changing the order that protocols are attempted if the vehicle failed to communicate on the first go around or ‘relaxing’ tolerances/specifications on repeat requests to try and be more tolerant of non-compliant vehicles, etc.

3.2.30.2. Having the ability to simultaneously attempt initialization on different protocols (where allowed by SAE and ISO specifications) to facilitate faster initialization.

3.2.30.3. Repeating initialization attempts on the same protocol consecutively before moving on to the next protocol if such an approach is advantageous.

- 3.2.31. If the DAD establishes communication (e.g., positive response to a Mode \$01 Parameter ID (PID) \$00 request or a positive StartCommunication response received) with one (1) or more ECUs on the vehicle:
- 3.2.31.1. The DAD shall request all received responses to a Mode \$01 PID \$00 request when requested by the NWA and if no vehicle ECU supports any Mode \$01 PIDs from \$00-\$20 (e.g., all received responses are all zeros indicating no supported PIDs):
 - 3.2.31.1.1. The DAD shall again request Mode \$01 PID \$00 to see if any non-zero responses are received. If at least one (1) ECU responds with support for some Mode \$01 PIDs, the DAD shall proceed with the inspection/data collection when requested by the NWA. If all the received responses still indicate no supported PIDs, the DAD shall terminate communication (e.g., use of a StopCommunication message or allow P3 to expire on ISO 9141 and ISO 14230 protocols) and then attempt to initialize communication with the vehicle beginning with the next protocol in the sequence (e.g., if communication was established in ISO 14230 but all ECU responses indicated no Mode \$01 PIDs were supported, ISO 14230 communication shall be terminated and then the DAD shall attempt to initialize with the next protocol (e.g., J1850 PWM, etc.)) such that initialization on ISO 14230 will be attempted again only after all other protocols have been tried.
 - 3.2.31.2. The DAD shall request and transmit all received responses to a Mode \$01 PID \$01 request when requested by the NWA.
 - 3.2.31.3. If the NWA determines that all the received responses still indicate support only for comprehensive components, the NWA will command that the DAD shall terminate communication (e.g., use of a StopCommunication message or allow P3 to expire on ISO 9141 and ISO 14230 protocols) and then attempt to initialize communication with the vehicle beginning with the next protocol in the sequence (e.g., if communication was established in ISO 14230 but all ECU responses indicated only comprehensive components were supported, ISO 14230 communication shall be terminated and then the DAD shall attempt to initialize with the next protocol (e.g., J1850 PWM, etc.)) such that initialization on ISO 14230 will be attempted again only after all other protocols have been tried.

OBDII Dynamic Data Collection

- 3.2.32. Upon request by the NWA, the DAD shall report the requested PID(s) to the NWA.
- 3.2.32.1. The DAD shall be able to transmit a subsequent request (for the same or next PID) within ten (10) msec of the vehicle being ready to accept such a request per the applicable SAE and ISO specifications.

OBDII Static Data Collection

- 3.2.33. The DAD shall collect OBDII data from the vehicle per NWA request.

Negative Response Codes

- 3.2.34. For ISO 15765-4 protocol:

- 3.2.34.1. The DAD shall handle negative response codes per Table 11 of SAE J1979.
- 3.2.34.2. Additionally, for response code \$78-Request correctly received-response pending, upon receipt of a \$78 for any request made by the DAD (i.e., any mode, any PID, InfoType, etc..., regardless of whether SAE J1979 allows that response code for that request), the DAD shall pass \$78 to the NWA and shall upon notification from the NWA reset to a wait time sent from the NWA and wait for the response from the vehicle.
- 3.2.34.3. The DAD shall accept consecutive \$78 response messages (each one resulting in a reset of P2 and waiting an additional P2max as sent by the NWA) before giving up and moving on to collect other data.
- 3.2.34.4. The DAD shall give up on the request, when instructed by the NWA.
- 3.2.34.5. For response code \$22- Conditions not correct, the DAD shall give up on collecting that data item and move on to collecting other data when instructed by the NWA.
- 3.2.34.6. The DAD shall return the negative response code \$22 to the NWA as the result for the requested item in cases where the DAD received a \$22 instead of a valid response with actual data.

3.2.35. For all other protocols:

- 3.2.35.1. The DAD shall handle negative response codes per Table 10 of SAE J1979.

Not Supported, Not Available, Not Valid Items

- 3.2.36. Whenever data is requested by the NWA and the only responses received from ECUs are invalid responses (e.g., the data does not have the expected number of data bytes, error checking indications indicate the data was not properly received, data collisions that cannot be reconciled with data collision handling specified in the applicable protocol specifications, etc.), the DAD shall report the invalid responses to the NWA.
- 3.2.37. The DAD shall NOT request data from the vehicle unless the specific data is requested by the NWA.

Verification of Responses

ECU Address Format

- 3.2.38. The DAD shall identify the ECU address for each data item it transmits to the NWA.
 - 3.2.38.1. For the ISO 15765-4 11-bit header protocol, the ECU Address shall be reported as Hex represented as ASCII with a value between 07E8 and 07EF (i.e., vehicle ECU using CAN identifier of \$07E8 shall reported as 07E8 to the NWA).
 - 3.2.38.2. For all other protocols, the ECU Address shall be reported as Hex represented as ASCII with a value between 00 and FF (i.e., vehicle ECU with an address of \$0A shall be reported as 0A to the NWA).

Protocol Name Format

3.2.39. If the BAR Certified DAD Vendor uses a non-standard protocol or a permutation of a standard protocol to communicate with 'Problem Vehicles', the BAR Certified DAD Vendor shall define each unique non-standard protocol name in conjunction with BAR's NWA Contractor and BAR.

Acquiring Mode \$01, PID Count and Support List Information

3.2.40. If indicated by the NWA, the DAD shall request Mode \$01 PID Count and Support List information.

PID Count

PID Support List

Acquiring Mode \$01, PID \$01 Information

3.2.41. If indicated by the NWA, the DAD shall request Mode \$01 PID \$01.

Acquiring Mode \$01 PID \$1C (OBD Compliance) and PID \$0C (Engine Speed) Data

OBD Compliance (Mode \$01 PID \$1C):

3.2.42. If indicated by the NWA, the DAD shall request Mode \$01 PID \$1C.

Engine Speed (Mode \$01 PID \$0C):

3.2.43. If indicated by the NWA, the DAD shall request the engine speed in accordance with the applicable communication protocol.

Acquiring Mode \$03 Confirmed Emission-Related Diagnostic Trouble Codes (DTCs)

3.2.44. If indicated by the NWA, the DAD shall retrieve the confirmed DTCs (Mode \$03) from the vehicle in accordance with this section and SAE J1979.

Acquiring Mode \$09, InfoTypes \$01 and \$02 Vehicle Identification Number (VIN) Data

3.2.45. If indicated by the NWA, the DAD shall request Mode \$09 InfoType \$02 information.

Acquiring Mode \$09, InfoTypes \$03 and \$04 Calibration Identification (CAL ID) Data

3.2.46. If indicated by the NWA, the DAD shall retrieve the CAL ID (Mode \$09 InfoType \$04) from the vehicle in accordance with this section and SAE J1979.

3.2.47. If an ECU reports more than one (1) CAL ID, the DAD shall report the received CAL IDs to the NWA for that ECU in the same order received from the vehicle (i.e., for each ECU that responds with multiple CAL IDs, the DAD shall use the same order as received to report the CAL IDs for that vehicle ECU to the NWA).

Acquiring Mode \$09, InfoTypes \$05 and \$06 Calibration Verification Number (CVN) Data

- 3.2.48. If indicated by the NWA, the DAD shall retrieve the CVN (Mode \$09 InfoType \$06) from the vehicle in accordance with this section and SAE J1979.
- 3.2.49. If an ECU reports more than one (1) CVN, the DAD shall report the received CVNs to the NWA for that ECU in the same order received from the vehicle (i.e., for each ECU that responds with multiple CVNs, the DAD shall use the same order as received to report the CVNs for that vehicle ECU to the NWA).
- 3.2.50. For all protocols, the DAD shall comply with SAE J1979 section 6.2.4.3 "Data Not Available within P2 Timing" for InfoType \$06.
- 3.2.51. If a request for CVN results in a \$78 negative response code message, the DAD shall report \$78 to the NWA.
- 3.2.52. If a request for CVN results in a \$22-conditions not correct negative response code message, the DAD shall report \$22 to the NWA.

Acquiring Mode \$01, PIDs \$30 (Number of Warm-ups Since Codes Cleared), \$31 (Distance Traveled Since Codes Cleared), \$4E (Engine Run Time Since Codes Cleared), \$21 (Distance Traveled With MIL On) and \$4D (Engine Run Time With MIL On), Data

Number of Warm-ups Since Codes Cleared (Mode \$01 PID \$30):

- 3.2.53. If indicated by the NWA, the DAD shall retrieve the number of warm-ups since codes cleared from the vehicle in accordance with this section and SAE J1979.

Distance Traveled Since Codes Cleared (Mode \$01 PID \$31) and Engine Run Time Since Codes Cleared (Mode \$01 PID \$4E):

- 3.2.54. If indicated by the NWA, the DAD shall retrieve the Distance Traveled Since Codes Cleared from the vehicle in accordance with this section and SAE J1979.

Distance Traveled With MIL On (Mode \$01 PID \$21) and Engine Run Time With MIL On (Mode \$01 PID \$4D):

- 3.2.55. If indicated by the NWA, the DAD shall retrieve the Distance Traveled With MIL On from the vehicle in accordance with this section and SAE J1979.

Acquiring Mode \$07 (Pending Emission-Related DTCs) and Mode \$0A (Permanent Emission-Related DTCs) Data

- 3.2.56. If indicated, by the NWA, the DAD shall retrieve the Pending Emission-Related DTCs (Mode \$07) and Permanent Emission-Related DTCs (Mode \$0A) from the vehicle in accordance with this section and SAE J1979.

Acquiring Mode \$06 Test ID (TID) Support and Test Limit Type and Component ID (TLTCID) Support/Mode \$06 OBD Monitor ID (OBDMID) Support and Test ID (TID) Support Data

3.2.57. If indicated, as required by the NWA, the DAD shall retrieve the test results (Mode \$06) from the vehicle in accordance with this section and SAE J1979.

Acquiring Mode \$09, InfoTypes \$0A (ECU Name)

3.2.58. If indicated, as required by the NWA, the DAD shall retrieve the ECU Name (Mode \$09 InfoType \$0A) from the vehicle in accordance with this section and SAE J1979.

3.2.59. The DAD shall not request InfoType \$09 (number of messages to report ECU Name) nor require InfoType \$09 to be supported before requesting InfoType \$0A (ECU Name).

Acquiring Mode \$09, InfoTypes \$07 and \$08/\$0B In-Use Monitor Performance Ratio (IUMPR) Data

3.2.60. If indicated, as required by the NWA, the DAD shall retrieve the IUMPR data (Mode \$09 InfoType \$08/\$0B) from the vehicle in accordance with this section and SAE J1979.

Sending Mode \$04 (Clear/Reset Emission-Related Diagnostic Information)

3.2.60.A If indicated by the NWA, the DAD shall send Mode \$04 to the vehicle.

Hardware

Cabling

3.2.61. The cable between the DAD and the BAR OIS Computer must be USB 2.0 compliant.

3.2.62. The DAD cable sheathing shall be of a material that will not leave markings on vehicle paint.

3.2.63. The DAD cable connectors shall be equipped with strain reliefs.

3.2.64. The DAD cable(s) shall be fifteen feet (15') ± six inches (6"), between the SAE J1962 Type A or Type B vehicle connector and the BAR OIS Computer.

3.2.65. The BAR Certified DAD Vendor may optionally offer various cable lengths (original fifteen feet (15') cable must still be provided) between the SAE J1962 Type A or Type B vehicle connector and the BAR OIS Computer. All optional cable lengths shall be subject to, and must meet, all the Functional Validation Tests.

Identification

3.2.66. The DAD shall be equipped with an external identification label that displays the unique, sequential serial number.

3.2.67. The DAD hardware/firmware shall be equipped with a unique, sequential, electronic serial number.

3.2.68. The unique sequential serial number on the exterior shall match the unique, sequential, electronic serial number.

3.2.69. Each DAD shall include a unique, sequential, electronic serial number at the hardware level that is unique to the DAD.

3.2.70. The DAD unique, sequential, electronic serial number shall be sent to the NWA upon request.

3.2.71. The format of the electronic serial number shall be XXNNNNNN where the 'XX' are two alpha characters that uniquely identify the BAR Certified DAD Vendor, followed by six numbers that shall start with '000001' and increase sequentially with each additional DAD.

Durability

3.2.72. The DAD shall withstand three (3) consecutive drops onto a concrete floor from a height of forty-eight inches (48") and continue to meet all requirements.

3.2.73. The DAD's J1962 Type A or Type B connector, which includes, the housing, pins, wiring, and strain reliefs shall remain functional under the following condition for a total of five thousand (5,000) cycles (1 cycle = 1 connection + 1 disconnection): mating of the connectors with a ten degrees (10°) +/- two degrees (2°) offset between centerlines of each, keeping two (2) surfaces parallel.

3.2.74. The DAD's connectors, which include, the housing, pins, wiring, and strain reliefs shall remain functional under the following condition for a total of five thousand (5,000) cycles (1 cycle = 1 connection + 1 disconnection): disconnection, by pulling the cable with a twenty pound (20 lb.) force offset of the mating connector by twenty degrees (20°) +/- four degrees (4°).

Connectors

3.2.75. The DAD's connection to the vehicle's OBDII port shall conform to SAE J1962, April 2002, "External Test Equipment Connector Type A" or "External Test Equipment Connector Type B" and "Vehicle Connector Type A" or "Vehicle Connector Type B".

3.2.76. If the DAD uses a Type B connector, the DAD shall be designed to not be harmed when connected to a vehicle's Type A OBDII port.

3.2.77. Requirement Deleted.

3.2.78. The pins used in the DAD's connectors shall have all edges "broken" (chamfered or rolled edges), in such that, the mating vehicle connector is not damaged. Reference: EN 22768-1:1993 (equivalent ISO 2768-1: 1989) and SAE J1962 revised APR2002.

3.2.79. For hardwired DAD devices, the connector between the DAD and the BAR OIS Computer shall be USB 2.0.

DAD Functionality Check;

3.2.80. The DAD shall include a mechanism to ensure that the DAD is functional during a Smog Check Inspection. [The intent of this functionality check is to verify that the DAD is functional and that the hardware has not been damaged since the previous inspection].

3.2.80.1. Requirement Deleted.

3.2.80.1.1. The mechanism shall verify the integrity of the DAD cable from the DAD SAE J1962 connector up to the DAD device/processor.

3.2.80.1.2. Requirement Deleted.

3.2.80.1.3. The mechanism shall, by design, ensure that it cannot be used to simulate a successful inspection in lieu of an actual vehicle.

3.2.81. The DAD shall perform the functionality check when requested by the NWA.

3.2.82. The DAD functionality check results shall be electronically reported to the NWA.

DAD General Electrical

3.2.83. The DAD shall protect its circuitry from electrical damage caused by vehicles in compliance with the SAE J1978 specification.

3.2.84. The DAD shall not require power to be present on pin sixteen (16) in order to communicate with the vehicle.

3.2.84.1. The DAD may use power if it is present on pin sixteen (16) but shall not require it to be present.

3.2.84.2. If power is not present on pin sixteen (16), the DAD shall be supplied with an alternate means of powering.

3.2.84.3. Alternate power sources must be approved by BAR.

3.2.84.4. The DAD must have some method of notifying the user that power or ground is not available at the SAE J1962 Type A or Type B vehicle connector when the alternate power or ground source requires user action to activate it and/or make an additional connection. This method must be approved by BAR.

3.2.85. The DAD shall not require pin four (4) (chassis ground) to be connected to ground in order to communicate with the vehicle.

3.2.85.1. The DAD may use pin four (4) if it is present but shall not require it to be present.

3.2.85.2. If ground is not present on pin four (4), the DAD shall be supplied with an alternate means of grounding.

3.2.86. The DAD shall utilize pin five (5) (signal ground) for the signal ground to establish and maintain communication with the vehicle if pin five (5) is connected to ground.

3.2.86.1. Requirement Deleted.

3.2.87. The DAD shall retrieve data from an OBDII system while being subjected to Radio Frequency Interference (RFI) or Electromagnetic Interference (EMI) caused by vehicles under test, and/or other station EMI/RFI generators, such as air compressors and arc welding equipment.

3.2.88. If wireless technology is used, there shall be no loss of communication between the transmitter and receiver when they are within thirty feet (30') of each other.

- 3.2.88.1. There shall be no loss of communication between the DAD transmitter and receiver while either the DAD transmitter and/or receiver is within three feet (3') of a BAR-97 Certified chassis dynamometer's Power Absorption Unit (PAU) during loaded operation.
- 3.2.88.2. There shall be no loss of communication between the DAD transmitter and receiver while either the DAD transmitter and/or receiver is within two feet 2' of a vehicle engine's Original Equipment Manufacturer (OEM) (not modified) electronic engine controls, while the vehicle's engine is running.
- 3.2.88.3. There shall be no loss of communication between the DAD transmitter and receiver, while either the DAD transmitter and/or receiver are within five feet (5') of a five horsepower (5-hp.) Alternating Current (AC) electric motor.
- 3.2.88.4. There shall be no loss of communication between the DAD transmitter and receiver, while either the DAD transmitter and/or receiver are subjected to Citizen's Band (CB), Emergency Band, or other types of radio transmissions.

Future OBD Data

- 3.2.89. For the ISO 15765-4 CAN protocol only, the DAD shall be capable of receiving a specific data request(s) from the NWA in the form of a Mode \$xx PID \$xx request message, be able to successfully format and transmit that message to the vehicle, retrieve the response from the vehicle, and provide the response to the BAR NWA (e.g., to allow capture of future data that is not included in the data files and/or defined by SAE yet). Such request messages will be restricted to SAE J1979 defined messages (i.e., Modes \$01 through \$0F including messages or data not currently identified in this specification and/or after being defined by SAE J1979 at a future time).

4. Functional Validation Tests

The BAR will verify that each requirement of this specification has been met. The following is a sampling of the testing that -may be done.

4.1. Testing

- 4.1.1. Inspection of materials and fasteners: Pass = Verify that the materials used in construction are resistant to corrosion and abrasion.
- 4.1.2. Inspection of electrical connectors: Pass = Verify that the electrical connectors utilized coincide with connectors specified in the document.
- 4.1.3. Inspection of strain reliefs: Pass = Verify that strain reliefs are used on all connections.
- 4.1.4. All tests shall be performed both while the DAD is powered on and off and has been soaked for eight (8) hours at standard ambient conditions (or simulated ambient conditions) ranging from twenty degrees (20°) to one hundred thirty degrees (130°), Fahrenheit (F), (negative seven degrees (-7°) to fifty-five degrees (55°) Celsius (C)).
 - 4.1.4.1. Drop test onto concrete floor three times from a height of forty-eight inches (48").
Pass = Verify that the DAD is fully functional after the final drop.

- 4.1.4.2. Requirement Deleted.
- 4.1.4.3. Requirement Deleted.
- 4.1.4.4. Requirement Deleted.
- 4.1.4.5. Apply battery voltage up to twenty-four point zero Volts (24.0 V) DC +/- one Volt (1 V) for a minimum of ten (10) minutes with the positive voltage applied to pin sixteen (16) and ground applied at pin four (4) (chassis ground) and five (5) (signal ground), of the J1962 external test connector. Pass = Verify that the DAD is fully functional after the end of the test.
- 4.1.4.6. Apply battery voltage of up to twenty-four point zero Volts (24.0 V) DC +/- one Volt (1) for a minimum of ten (10) minutes with ground applied to pin sixteen (16) and the positive battery voltage applied at pin four (4) (chassis ground) and five (5) (signal ground), of the J1962 external test connector. (The DAD will not be powered on due to the reversed polarity). Pass = Verify that the DAD is fully functional after the end of the test.
- 4.1.4.7. Apply battery voltage ranging from eight point zero (8.0) to fifteen point zero (15.0) Volts (V) DC +/- one Volt (1 V) for a minimum of five (5) minutes, positive voltage applied at pins seven (7) and fifteen (15) and ground applied at pin four (4) (chassis ground) and five (5) (signal ground), of the J1962 external test connector. Pass = Verify that the DAD is fully functional after the end of the test.
- 4.1.4.8. Connector cyclic testing: The J1962 Type A or Type B, OBD connector, which includes, the housing, pins, wiring, and strain reliefs shall remain functional (defined as the ability to successfully retrieve the OBD data, detailed in this specification, upon completion of the following test for a total of five thousand (5,000) cycles (1 cycle = 1 connection + 1 disconnection): Mating of the connectors with a ten degrees (10°) +/- two degrees (2°) offset between centerlines of each, keeping two (2) surfaces parallel.
- 4.1.4.9. Connector cyclic testing: The J1962 Type A or Type B, OBD connector, which includes, the housing, pins, wiring, and strain reliefs shall remain functional (defined as the ability to successfully retrieve the OBD data, detailed in this specification, upon completion of the following test for a total of five thousand (5,000) cycles (1 cycle = 1 connection + 1 disconnection): Disconnection, by pulling the cable with a twenty pound (20 lb.) force offset of the mating connector by twenty degrees (20°) +/- four degrees (4°).
- 4.1.5. Automatic (without user intervention) DAD boot up upon PC start.
- 4.1.6. Successful initialization / communication with all OBDII relevant ECUs and retrieve all of the OBDII data requested.
- 4.1.7. Successful transmission of all requested OBDII data from all OBDII relevant ECUs to the NWA.
- 4.1.8. Successful update of the DAD firmware and software using the DAD Vendor's proposed mechanism.

- 4.1.9. If wireless technology is used, there shall be no loss of communication between the transmitter and receiver when they are within thirty feet (30') of each other.
- 4.1.10. If wireless technology is used, there shall be no loss of communication between the transmitter and receiver while either the DAD transmitter and/or receiver is within three feet (3') of the chassis dynamometer's PAU during loaded operation.
- 4.1.11. If wireless technology is used, there shall be no loss of communication between the transmitter and receiver while either the DAD transmitter and/or receiver is within two feet (2') of a vehicle engine's OEM (not modified) electronic engine controls, while the vehicle's engine is running.
- 4.1.12. If wireless technology is used, there shall be no loss of communication between the transmitter and receiver while either the DAD transmitter and/or receiver is within five feet (5') of a five horsepower (5-hp.) AC electric motor.
- 4.1.13. If wireless technology is used, there shall be no loss of communication between the transmitter and receiver while either the DAD transmitter and/or receiver is within a closed vehicle with the windows up.
- 4.1.14. A connectivity rate, as required in this document, determined from DAD Vendor selected and BAR approved Beta Testing sites.
- 4.1.15. The DAD Vendor shall provide proof to BAR of successful testing of requirement 4.1.4.8.
- 4.1.16. The DAD Vendor shall provide proof to BAR of successful testing of requirement 4.1.4.9.

5. Certification, Annual Recertification and Decertification/Citation

Prior to the beginning of Certification Testing, the BAR will make available a Testing environment (Sandbox) for the DAD Vendors use.

5.1. Certification

- 5.1.1. All DADs submitted for Certification shall be the full and current configuration proposed for sale. PARTIAL, DATED, OR INCOMPLETE MODELS ARE NOT ACCEPTABLE and shall be returned to the DAD Vendor if submitted.
- 5.1.2. The DAD Vendor shall submit a Certification Submittal Package to BAR, which shall contain:
 - 5.1.2.1. A completed Application for Certification form found in Appendix A.
 - 5.1.2.2. A copy of the DAD Vendor's retailer's seller's permit or certification of registration issued by the State of California's Board of Equalization.
 - 5.1.2.3. A Check or Money Order, payable to the Department of Consumer Affairs "DCA" for the DAD Certification Fee.

5.1.3. The DAD Vendor shall submit one hard copy of the Certification Submittal Package to the BAR.

5.1.4. The DAD Vendor shall submit additional hard copies of the Certification Submittal Package when requested by the BAR.

5.1.5. The DAD Vendor shall certify that the DAD submitted for Certification complies with all applicable California and Federal administrative, safety, ergonomic, licensing, and Certification requirements. Ignorance of the law is no excuse for noncompliance.

The DAD Certification Submittal Package and its contents will be treated by the BAR as confidential, and will be kept secured.

The BAR shall charge a fee for Certification Testing of the DAD. The DAD Certification Fee shall cover up to two (2) rounds of testing; additional testing will require additional fees. The DAD Certification Fee shall be fixed by the department based upon its actual costs of Certification Testing, shall be calculated from the time that the equipment is submitted for testing until the time that Certification Testing is complete, and shall in no event exceed the dollar limit specified in Section 44036(b) of the Health and Safety Code. The DAD Certification Fee is ten thousand dollars (\$10,000). If multiple configurations are submitted (e.g. wireless) they will be included in this single Certification Fee.

The BAR will accept DADs for Certification Testing during a two (2) week collection period, as designated by the BAR. At the conclusion of this collection period, the BAR will close Certification for this round and no additional Certification Submittal Packages will be accepted.

The BAR will conduct Certification Testing at least on a yearly basis. The BAR reserves the right to schedule additional collection periods as program needs dictate.

Once accepted for Certification Testing, BAR DAD Certification will be done in two (2) phases. In the first phase (Alpha Testing), the DAD will be tested by the BAR and/or its designee in a laboratory setting.

For the Alpha Testing:

5.1.6. The DAD Vendor shall provide BAR with five (5) DADs with a single hardware/firmware/software version.

5.1.7. The DAD Vendor shall provide BAR with one (1) Laptop computer for use during Alpha Testing, which shall be returned to the DAD Vendor upon the completion of Alpha Testing.

This testing will determine if the DAD successfully communicates with BAR simulators and/or in-use vehicles, collects the requested data and meets other selected requirements of this Specification.

After all testing has been completed on all DADs submitted during the two (2) week collection period; BAR will issue results to each DAD Vendor. If the DAD passes all testing during Alpha Testing, the DAD will move onto the second phase. If the DAD does not pass Alpha Testing, the DAD will be returned to the DAD Vendor and shall not be eligible for additional testing in the current round. The failed DAD may have its deficiencies addressed and may be submitted during the next collection period. If the failed DAD is submitted for a second time, the DAD Vendor shall submit a new Certification Submittal Package, excluding the DAD Certification Fee.

If the DAD does not pass Alpha Testing on the second attempt, the DAD will be returned to the DAD Vendor and shall not be eligible for additional testing in the current round. The failed DAD may have its deficiencies addressed and may be submitted during the next collection period. If the failed DAD is submitted again, the DAD Vendor shall submit a new Certification Submittal Package, including the DAD Certification Fee.

In the second phase (Beta Testing), the DAD will be deployed at California Smog Check Stations and used to collect data from in-use vehicles.

5.1.8. The DAD Vendor shall be responsible for finding Smog Check Stations willing to partner with the DAD Vendor for Beta Testing. The chosen Smog Check Stations shall be subject to BAR approval.

5.1.9. The DAD Vendor shall deploy ten (10) DADs to the field in the Sacramento Region for the collection of the first one thousand five hundred (1,500) test records.

5.1.10. Following the collection of these one thousand five hundred (1,500) test records and with agreement from the BAR, the DAD Vendor shall deploy a minimum of an additional forty (40) DADs to the field statewide for the collection of the remaining test records.

Any number of Beta Testing stations above the minimum may or may not be approved by the BAR. During Beta Testing, the BAR will continuously monitor for compliance with this Specification. If the BAR finds that the DAD is not in compliance with this Specification, Beta Testing of that Vendor's DADs will stop, the BAR will request remedy of the deficiencies, and the Beta Testing period shall begin again for that Vendor's DADs.

5.1.11. During Beta Testing, the DAD Vendor shall be responsible for Root Cause Analysis to determine the reason the DAD failed to meet this Specification.

Beta Testing will continue until a stable configuration (hardware/firmware/software) of the DAD has collected twenty thousand (20,000) records. If a DAD Vendor has not completed Beta Testing at the end of 4 months, the BAR shall evaluate whether the DAD Vendor will be allowed to continue Beta Testing, or be required to resubmit their DAD at the next collection period. At the conclusion of Beta Testing, the BAR will evaluate whether the requirements of this specification have been met.

At the conclusion of Beta Testing, if the DAD successfully meets all of the requirements of this Specification, as determined by the BAR, the DAD shall be certified for use in California's Smog Check Program for a period of one (1) year. At the conclusion of Beta Testing, if the DAD does not successfully meet all of the requirements of this specification, as determined by the BAR, the DAD shall NOT be certified for use in California's Smog Check Program. The failed DAD may have its deficiencies addressed and may be submitted during the next collection period. If the DAD that failed Beta Testing is submitted for a second time, the DAD Vendor shall submit a new Certification Submittal Package, excluding the DAD Certification Fee, if they had not previously failed Alpha Testing.

If the DAD does not pass Alpha and Beta Testing on the second attempt, the DAD will be returned to the vendor and shall not be eligible for additional testing in the current round. The failed DAD may have its deficiencies addressed and may be submitted during the next collection period. If the failed DAD is submitted again, the DAD Vendor shall submit a new Certification Submittal Package, including the DAD Certification Fee.

5.2. Annual Recertification

5.2.1. Ninety (90) days prior to the conclusion of the one year certification period, the BAR Certified DAD Vendor shall meet with the BAR to discuss the resolution of any outstanding issues.

5.2.2. If there are outstanding issues, the BAR Certified DAD Vendor shall submit the DAD for the annual recertification.

No fee will be charged for the annual recertification.

The BAR shall evaluate whether the DAD continues to meet the requirements of this specification. If the BAR determines that the DAD does continue to meet the requirements of this specification, the DAD shall be recertified for another one (1) year period. If the BAR determines that the DAD does not continue to meet the requirements of this specification, the DAD shall NOT be recertified and shall NOT be used in California's Smog Check Program. The failed device may have its deficiencies addressed and may be submitted during the next collection period. If the failed device is submitted again, the DAD Vendor shall submit a new Certification Submittal Package including the Certification Fee.

The BAR contact for DAD Certification, Annual Recertification and Decertification/Citation matters is:

Manager of Program Support
BAR Engineering and Research Branch
10949 North Mather Drive
Rancho Cordova, CA 95670
BAROIS.Certification@dca.ca.gov

5.3. Decertification or Citation

If the BAR finds that a BAR Certified DAD Vendor fails to furnish or install required software updates to the DAD or to meet the specifications, standards, or requirements as provided in this Specification, the BAR shall decertify the DAD and prevent the use of the DAD in the California Smog Check Program, or in the alternate, issue a citation to the BAR Certified DAD Vendor.

Decertification

If the BAR finds cause to decertify a BAR Certified DAD Vendor's DAD, the BAR shall file and serve a notice in writing or by electronic mail to the BAR Certified DAD Vendor. The notice shall contain a summary of the facts and allegations that form the cause or causes for decertification.

Service of the notice may be given in any manner authorized by Business and Professions Code Section 124.

If a written or electronic request for a hearing is received within five (5) days from the date of service, a hearing shall be held as provided for as follows: The BAR shall hold a hearing within ten (10) days of the date on which the bureau received a timely request for a hearing. The BAR shall notify the BAR Certified DAD Vendor or representative of the time and place of the hearing. The hearing shall be limited in scope to the time period, facts, and allegations specified in the notice prepared by the BAR.

The BAR Certified DAD Vendor shall be notified of the determination by the BAR Chief, or the BAR Chief's designee, who shall issue a decision and notify the BAR Certified DAD Vendor within ten (10) days of the close of the hearing.

The BAR Certified DAD Vendor may request an administrative hearing to contest the decision of the BAR Chief or the BAR Chief's designee within thirty (30) days of the date of the determination by the BAR Chief, or the BAR Chief's designee.

Citation

Any citation issued by the BAR shall specify the nature of the violation and may specify a fine not to exceed one thousand dollars (\$1,000) for each day the BAR Certified DAD Vendor fails to furnish or install the specified software updates by the specified period.

The BAR shall base its assessment and amount of the fine on the following circumstances: the gravity of the violation; the good faith of the BAR Certified DAD Vendor; and the history of previous violations.

Any citation shall be served pursuant to subdivision (c) of Section 11505 of the Government Code.

The BAR Certified DAD Vendor may request a hearing in accordance with Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code. A written or electronic request for a hearing shall be submitted in writing and received by BAR within thirty (30) days from the date of service of the citation.

If the BAR does not receive any request for a hearing from the BAR Certified DAD Vendor within thirty (30) days from the date of service of the citation, the citation shall be deemed the final order.

In addition to requesting an administrative hearing, the cited BAR Certified DAD Vendor may request an informal conference to review the contents of the citation. A request for an informal conference shall be made in writing, within ten (10) days from the date of service of the citation, to the BAR Chief or the BAR Chief's designee.

The BAR Chief or the BAR Chief's designee shall hold, within sixty (60) days from the receipt of the request, an informal conference with the cited BAR Certified DAD Vendor. At the conclusion of the informal conference, the BAR Chief or the BAR Chief's designee may affirm, modify, or dismiss the citation, including any fine levied, order or abatement, or order of correction issued. The BAR Chief or the BAR Chief's designee shall state in writing the reasons for his or her action and transmit within fifteen (15) days of the informal conference, a copy of the findings and decision to the cited BAR Certified DAD Vendor. Unless an administrative hearing as provided for in the above subsection was requested in a timely manner, an informal conference decision that affirms the citation shall be deemed to be a final order with regard to the citation issued, including the fine levied and the order of abatement.

If the citation, including any fine levied or order of abatement or correction, is modified, the citation originally issued shall be considered withdrawn and a new citation issued. If the cited BAR Certified DAD Vendor desires a hearing to contest the new citation, a request must be made in writing, within ten (10) days of receipt of the informal conference decision, to the BAR Chief or the BAR Chief's designee. The hearing shall be held pursuant to Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code. A cited BAR Certified DAD Vendor may not request an informal conference for a citation that has been modified following an informal conference.

Any failure to comply with the final order for payment of a fine, or to pay the amount specified in any settlement agreement, is cause for decertification of the BAR Certified DAD Vendor's DAD.

APPENDIX A



Application for Certification
BAR OBD Data Acquisition Device (DAD)
Alpha and Beta Testing Wired Configuration

DAD Vendor Name: _____

DAD Vendor Address: _____

DAD Vendor Phone Number: _____

DAD Vendor Email Address: _____

DAD Vendor Website: _____

DAD Make Name or Number: _____

DAD Model Name or Number: _____

DAD Hardware Version: _____

DAD Firmware Version: _____

DAD Software Version: _____

DAD Serial Number #1: _____ DAD Serial Number #4: _____

DAD Serial Number #2: _____ DAD Serial Number #5: _____

DAD Serial Number #3: _____

DAD Laptop Serial Number: _____

The undersigned hereby certifies, to the best of his/her knowledge, that the above equipment submitted for testing and evaluation has been designed and tested in accordance with the BAR OBD Inspection System Data Acquisition Device Specification, and all subsequent addenda, and that they meet all of the requirements contained therein.

(Printed Name)

(Signature)

(Date)



Application for Certification
BAR OBD Data Acquisition Device (DAD)
Alpha and Beta Testing Wireless Configuration (Optional)

DAD Vendor Name: _____

DAD Vendor Address: _____

DAD Vendor Phone Number: _____

DAD Vendor Email Address: _____

DAD Vendor Website: _____

DAD Make Name or Number: _____

DAD Model Name or Number: _____

DAD Hardware Version: _____

DAD Firmware Version: _____

DAD Software Version: _____

DAD Serial Number #1: _____ DAD Serial Number #4: _____

DAD Serial Number #2: _____ DAD Serial Number #5: _____

DAD Serial Number #3: _____

DAD Laptop Serial Number: _____

The undersigned hereby certifies, to the best of his/her knowledge, that the above equipment submitted for testing and evaluation has been designed and tested in accordance with the BAR OBD Inspection System Data Acquisition Device Specification, and all subsequent addenda, and that they meet all of the requirements contained therein.

(Printed Name)

(Signature)

(Date)

APPENDIX B



Bureau of Automotive Repair
Engineering and Research Branch
10949 North Mather Drive, Rancho Cordova, CA 95670
916.403.0315 Telephone
www.smogcheck.ca.gov



DISCLOSURE AGREEMENT BAR OBD Data Acquisition Device (DAD)

This Disclosure Agreement provides the purchaser of any BAR Certified OBD Data Acquisition Device (DAD) with details of which they should be aware.

- The Station must purchase a BAR Certified DAD to participate in the OBD-focused testing.
- The DAD has been certified for use in the California Smog Check Program for a period of one year.
- At the end of the one year certification period, the DAD may be decertified.
- If the BAR Certified DAD Vendor does not comply with the BAR DAD Specification, the DAD will be decertified.
- If the DAD is decertified, the DAD can no longer be used to conduct Smog Check Inspections and different BAR Certified DAD must be purchased if the Station wishes to continue in the OBD-focused testing.

I have read the above statements and understand these disclosures.

(Printed Name)

(BAR Certified DAD Vendor Name)

(Signature)

(Date)

(Station Name)

(Station Number)

(Station Address)

(Phone Number)

(City, State, ZIP)

(Email Address)