Reference to SAE J1939-84's Discussion on SAE J1939-21™ ACK and NACK

The implementation of the queries for the IUMPR Data Collection Tool was guided by the understanding given in [draft] SAE J1939-84™ Section 6 (page 19) which begins:

> *" II. Compliance to SAE J1939-21 and SAE J1939-73 – Query procedures and responses are subject to the provisions given in SAE J1939-21 and SAE J1939-73. These provisions are subject to the convention that the communication resources for destination specific responses, that is the RTS/CTS facilities and TP.DT buffers, shall not be busy supporting other network communication needs for more than one second while the SAE J1939-84 test is being administered.*
>
> *A. Individual requests in the procedures below are shown as having either a global destination address, indicated by "Global", or a destination specific request, indicated by "DS". Destination specific requests will typically be sent to those OBD ECUs that respond to a global request for DM5 with a value that indicates compliance to an OBD regulation. [See Section A.6 for values that indicate HD OBD is supported.]*

Through, on page 20,

> *"V. Non-Response Failure Convention – The enumerated failure criteria presume that missing responses that are not allowed under III shall be interpreted as failures. A minimum of one positive response is required from the vehicle. A NACK shall be provided for destination specific requests when the PGN field is not supported by an ECU. An acknowledgement PGN with a control byte value of 1 (not acknowledgement) is not an automatic disqualification for a given query. Partitioned systems will feature ECUs that do not support many of the queried SAE J1939-73 messages. These ECUs will send a control byte value of 1 for those required PGNs that another ECU supports for compliance with 13 CCR 1971.1 (h) communications provisions when queried using the destination specific form of Request [PGN 59904]. When they do not support the PGN, such ECUs do not respond to the global form of Request for that PGN. See Section A.10 for an example set of evaluation criteria."*

This section of SAE J1939-84 cites SAE J1939-21 which is incorporated by reference into SAE J1939-84, but also defines key exceptions that only apply to the SAE J1939-84 test software. The IUMPR Data Collection Tool software is to provide the full application layer timeout. In order to accommodate information hiding between the data link layer and the application layer some time out intervals are extended beyond the 1.2s value defined in SAE J1939-21, because SAE J1939-21 transport protocol packets reset data link (software) layer timeouts and

then can continue to be sent by the server after 1.2 seconds. This information is the copyright of SAE International and cannot be reproduced here; see the October 2017 version of SAE J1939-84 for the full text.

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