National Marine Electronics Association

International Marine Electronics Association

Technical Bulletin

Amendment to NMEA 2000 Edition 3.10 February 2015 Appendix C Certification Criteria and Test Methods Version 1.200 October 2004

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Data Instances Certification Testing

NMEA 2000 Amendment
An amendment is a technical specification that is publically available.
The content of the amendment will be incorporated into the next released version of the NMEA 2000 Appendix C and next edition of the NMEA 2000 standard.

This document contains new certification testing of Data Instance as per the new requirements in NMEA 2000 Main Document Version 2.000 February 2015. Manufacturers have 18 months to certify products from the publication date of February 2015 of the NMEA 2000 Main Document Version 2.000 which is July 2016. This version of the Main Document and Edition 3.10 was developed and approved by the NMEA 2000 Standards Committee.

C.2.44 Field Programmability of the Data Instance [8.4.3] – Mandatory

1. Does the DUT use the source address of a device as the first qualifier when receiving many of the same PGNs containing data instance on the NMEA 2000 network?	Yes_____	No_____
2. Does the DUT require the data instance to be unique on the bus?	Yes_____	No_____
3. If the DUT receives two PGNs of the same type with data instance of zero (0) in each of the PGNs from different devices will the DUT display this properly?	Yes_____	No_____
4. Will the DUT accept and perform it's function with data instances that are duplicated on the bus?	Yes_____	No_____

Example:
Data instances within a PGN are only unique to the device that generates and transmits the PGN. Data instances are not unique on the bus. The table of PGNs below provides an example of typical PGNs with data instance values that are properly configured, unique to the device that generates the PGN. The data instance field in PGN 127505 is defined as Fluid Instance. PGN 127505 is being transmitted from two different tank monitors with two different source addresses (SA 12 and SA 20). The fluid instance values reported by tank monitor 1 are independent of those reported by tank monitor 2.

Though the same fluid instance values are being reported by the different source addresses, each PGN transmission includes the source address of where it originated, thus there is no conflict with similar fluid instance values. The combination of source address and fluid instance uniquely identifies each of these PGNs on the bus.
If the receiving device *does not* maintain a NAME to address table, each time the PGN of interest is received the source address must be validated to the NAME to assure it is the desired PGN. This method will work even if the source address on the sending device changes.

If the receiving device *does* maintain a NAME to address table, then the receiving device can compare the received PGN's source address in the table. If the device that generated the PGN is forced to claim a new address, the NMEA to Address Table should be updated by the receiving device allowing easy validation of the received PGN's origin.
Products that *do* maintain and utilize the source address to name relationship will work with

widest range of disparate products on any NMEA 2000 bus. Products that *do not* maintain and utilize the source address to name relationship will by design be limited in their scope and application.

PGN 127505 Fluid Level Tank Monitor 1 Source Address 12 Fluid instance = 0 Fluid Type = 0 (Fuel)	PGN 127505 Fluid Level Tank Monitor 2 Source Address 20 Fluid instance = 0 Fluid Type = 1 (fresh water)
PGN 127505 Fluid Level Tank Monitor 1 Source Address 12 Fluid instance = 1 Fluid Type = 0 (Fuel)	PGN 127505 Fluid Level Tank Monitor 2 Source Address 20 Fluid instance = 1 Fluid Type = 2 (waste water)
PGN 127505 Fluid Level Tank Monitor 1 Source Address 12 Fluid instance = 2 Fluid Type = 1 (fresh Water)	PGN 127505 Fluid Level Tank Monitor 2 Source Address 20 Fluid instance = 2 Fluid Type = 0 (fuel)