AEROSPACE DATA EXCHANGE PROGRAM TRANSMITTAL

PROBLEM ADVISORY

CAES

1. TITLE Configuration access lockup on the UT200SpW4RTR 4-Port SpaceWire Router	**2. DOCUMENT NUMBER** SPO-2014-PA-0003
	3. DATE *(Year, Month, Date)* 2014, May, 28
4. MANUFACTURER NAME AND ADDRESS CAES 4350 CENTENNIAL BOULEVARD COLORADO SPRINGS, COLORADO 80907	**5. MANUFACTURER POINT OF CONTACT NAME** Ron Lake
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8. CAGE CODE	9. LDC START	10. LDC END	11. PRODUCT IDENTIFICATION CODE	12. BASE PART
65342	ALL	ALL	WD41	UT200SpW4RTR

13. BLANK	14. SMD NUMBER	15. DEVICE TYPE DESIGNATOR
	5962-08244	ALL
	16. RHA LEVELS	**17. QML LEVEL**
	ALL	ALL
	18. NON QML LEVEL	**19. BLANK**
	ALL	

20. PROBLEM DESCRIPTION / DISCUSSION / EFFECT

CAES is issuing this Problem Advisory to identify a configuration access lockup scenario on the 5962-08244 (UT200SpW4RTR 4 port SpaceWire Router).

Please see the attached CAES Errata for a complete discussion of this problem.

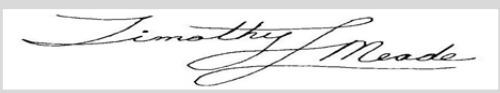
21. ACTION TAKEN / PLANNED

CAES proposes three different workarounds for this issue:

1. Ensure that the router data and strobe inputs are not transitioning during power-up
2. Send an EOP to all router ports that were transitioning during power-up
3. Perform a second reset following the power-up reset sequence

Any of the workarounds will correct the issue.

22. DISPOSITIONARY RECOMMENDATION:	CHECK & USE AS IS ☐	CONTACT MANUFACTURER ☐	REMOVE & REPLACE ☐	CORRECT & USE AS SPECIFIED ☒

23. ADEPT REPRESENTATIVE	24. SIGNATURE	25. DATE
Timothy L. Meade		**May 28, 2014**

Affected Part Numbers
UT200SpW4RTR-ZPC
UT200SpW4RTR-ZEC
UT200SpW4RTR-SPA
UT200SpW4RTR-SEA
UT200SpW4RTR-CPA
UT200SpW4RTR-CEA
5962R0824401VXC
5962R0824401VXC
5962R0824401VYA
5962R0824401VYA

Configuration access lockup on the UT200SpW4RTR Router

Table 1: Cross Reference of Applicable Products

Product Name:	Manufacturer Part Number	SMD #	Device Type	Internal PIC*
4-PORT SPACEWIRE ROUTER	UT200SpW4RTR	5962-08244	All	WD41B

*PIC = Product Identification Code

1.0 Overview

An event has been discovered that may cause the UT200SpW4RTR 4-port router to ignore configuration register read and write commands following power-up. The occurrence of the event is easily correctable with one of the three workarounds described in section 4.0 below. A system implementing the 4-port router that experiences this configuration lockout event will temporarily loose access to the configuration space within the router.

2.0 Description

Configuration access is a packet that has 0x00 as the destination address. A configuration packet allows access to the lookup tables, configuration registers, and status registers within the router.

This configuration lockup condition may occur when:

1) The router reset input is held low through power up (/RST)
2) There are active data/strobe signals on one or more router input ports that transition during a brief window of time following the release of reset to logic-high (RX#_D, RX#_S, RX#_D_LV+/-, RX#_S_LV+/-)
3) An internal configuration access write-enable register powers up into the active logic-low state, this state grants access to the configuration and status register space of the UT200SpW4RTR.

3.0 Impact

The failure mechanism occurs when the router interprets a receive clock pulse from the SpaceWire input data/strobe transition while the write-enable register for that port is active. This receive clock pulse initiates a configuration access from a SpaceWire port, locking further communication with the configuration registers (0x00) until the offending port receives an EOP. The duration of the sensitive window of time following reset release is dependent upon the input clock and reset relationships.

4.0 Corrective Action

There are three independent workarounds to recover from this issue, only one of the three workarounds is required to recover from the configuration lockout issue.

1. Ensure the router data and strobe inputs are not transitioning during power-up
2. Send an EOP to all router input ports that could be transitioning during power-up, to clear a potential configuration register lockup state
3. Perform a second reset following the power-up reset sequence