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(54) **RESILIENT DATA COMMUNICATIONS  
WITH PHYSICAL LAYER LINK  
AGGREGATION, EXTENDED FAILURE  
DETECTION AND LOAD BALANCING**

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(57) **ABSTRACT**

Rapid channel failure detection and recovery in wireless communication networks is needed in order to meet, among other things, carrier class Ethernet channel standards. Thus, resilient wireless packet communications is provided using a physical layer link aggregation protocol with a hardware-assisted rapid channel failure detection algorithm and load balancing, preferably in combination. This functionality may be implemented in a Gigabit Ethernet data access card with an engine configured accordingly. In networks with various topologies, these features may be provided in combination with their existing protocols.

