Table 2: Interaction Failure Analysis Results on Platooning SoS Protocol

| Cluster ID | Name | Failure scenario | | | | Faults in code | Lines in code 05_PlatoonMg.cc |
		Context	Triggering event	Symptoms	Categorization		
0	Leader Leave Optsize 1	During the Leader Leave operation	The rear platoon leader requests Merge to the new platoon leader by OptSize policy	Constantly requests Merge to the new leader	Incorrect logic	- BusyReplying bug OR - MERGE.REQUEST attempt bug	- 609~636 - 729 ~744
1	Middle Follower Leave Optsize 1	During the Middle Follower Leave operation	The intermediate platoon leader requests Merge to the left vehicle by OptSize policy	Constantly requests Merge to the left leader	Missing logic	- FollowerLeaveProtocol bug OR - LeavedVehList bug	- 1764~1798 - 726~745
2 & 7	Split Optsize	During the Split operation	The rear platoon leader requests Merge to the newly split platoon by OptSize policy	Constantly requests Merge to the newly split platoon leader	Incorrect logic	- BusyReplying bug OR - MERGE.REQUEST attempt bug	- 609~636 - 729~744
3	Middle Follower Leave Optsize 2	During the Middle Follower Leave operation	The rear platoon leader requests Merge to the intermediate leader by OptSize policy	Constantly requests Merge to the intermediate leader	Non-occurrence of expected events on expected time	- FollowerLeaveProtocol bug AND - LeaveSplitCaller bug	- 1780~1796
4	End Follower Leave Optsize	During the Split operation in the End Follower Leave operation	The rear platoon leader requests Merge to the left vehicle by OptSize policy	Constantly requests Merge to the left leader	Incorrect logic	- BusyReplying bug OR - MERGE.REQUEST attempt bug	- 609~636 - 729~744
5	Simultaneous Split & Merge	During the Split operation	Merge by OptSize policy to the same leader who simultaneously requests Split operation.	Constantly requests Merge to the original leader	Communication concurrency error	- BusyReplying bug OR - MERGE.REQUEST attempt bug	- 609~636 - 729 ~744
6	Leader Leave Optsize 2	During the Leader Leave operation	The new platoon leader requests Merge to the left leader by OptSize policy	Constantly requests Merge to the left leader	Missing logic	- ChangeVehStateLastly bug OR - LeavedVehList bug	- 1397~1424 - 726~745