Ref. Id	ETCS Macro Function	Macro Function Data Item	Failure Mode / Threats	Failure Cause	Operation Mode	Failure Effects			System Protection / Mitigation /Barriers (external)	Severity	System Protection / Mitigation /Barriers (internal)	F. Rate
						Local	Intermediate	End				
5.2.4.1	**Radio message** (Track to Train)	Track Description, Linking Information, MA data, System data, Emergency messages	**Repetition, Insertion, Resequence**	any failure of the non trusted transmission system, e.g. memory effects	level 2, all modes	wrong information to onboard	wrong speed or distance calculation	Exceedance of safe speed / distance by train		catastrophic	**clear identification of messages (Time stamp) "Message sequence" message identity for some types of messages Safety Protocol in Subset037 Cp.7.2**	
5.2.4.2	Radio message (Track to Train)	Track Description, Linking Information, MA data, System data, Emergency messages	**Deletion, Delay**	any failure of the non trusted transmission system	level 2, all modes	no complete information	wrong speed or distance calculation	Exceedance of safe speed / distance by train	**Additional mitigations outside ETCS might be necessary. Safety analysis must be performed for trackside specific applications. Impact of delayed/deleted messages send to train equipment must be checked (e.g. emergency messages, see below)**	catastrophic	**clear identification of messages (Time stamp) and message acknowledgement ""Message sequence" Safety Protocol in Subset037 Cp.7.2**	
5.2.4.3		**Emergency messages** e.g. Unconditional emergency stop			level 2, all modes; **specific operation conditions**	no Emergency information		Exceedance of safe speed / distance by train	**Service External to ETCS (It is expected that using of Emergency Messages Service shall not deteriorate the safety of the system)**	catastrophic	**using of high priority channel for conditional and unconditional emergency stop; supervision of radio link "Message timeliness"; acknowledgement of each message and/or inform the RBC separately**	
5.2.4.4	Radio message (Track to Train)	Track Description, Linking Information, MA data, System data, Emergency messages	**Corruption**	any failure of the non trusted transmission system	level 2, all modes	wrong information to onboard	wrong speed or distance calculation	Exceedance of safe speed / distance by train		catastrophic	**safety coding "Message integrity" Safety Protocol in Subset037 Cp.7.2**	