

	FaultModel	DataItem	Span	Type	FaultClass	Min	Max	Threshold	Delta	State	Value
	TempMessage	1	1	INT	VAT	NA	NA	100	10	NA	NA
	TempMessage	1	1	INT	FVAT	NA	NA	100	10	NA	NA
	BoardStatus	1	1	DOUBLE	VOR		10	13	NA	1	NA
	BoardStatus	1	1	DOUBLE	FVOR		10	13	NA	1	NA

TestSuite1																	
Decription		Complete suite															
		Requirements coverage															
		Test 1	Test2	Test3	Test4	Test5	Test6	Test7	Test8	Test9	Test10	Test11	Test12	Test13	Test13	Test15	Test16
Message1 (BoardStatus)	Voltage_Error_Absent	T	T	T	T	T	F	F	T	F	T	F	F	T	F	F	F
Message2 (TempMessage)	Temperature_Alarm_Absent	T	T	F	F	T	T	T	F	F	F	F	F	T	T	F	T
Message3 (BoardStatus)	Voltage_Error_Absent	T	T	T	T	F	T	T	F	T	F	T	F	F	T	F	F
Message4 (TempMessage)	Temperature_Alarm_Absent	T	F	T	T	F	T	T	T	T	F	F	F	F	F	T	F
		Test 1	Test2	Test3	Test4	Test5	Test6	Test7	Test8	Test9	Test10	Test11	Test12	Test13	Test13	Test15	Test16
		Exchanged data															
Message1 (BoardStatus)	voltage	12	12		12	12		20	20	12	20	12	20		12	20	20
Message2 (TempMessage)	temp_1		50	50		120	120	50	50	50	120	120	120	120	50	50	120
Message3 (BoardStatus)	voltage		12	12		12	12	20	12	20	20	12	20		20	12	20
Message4 (TempMessage)	temp_1		50	120			50	120	50	50	50	50	120	120	120	120	50
		Oracles															
	temperature	"==50"	"==120"	"==50"	"==120"	"==50"	"==50"	"==0"	"==120"	"==50"	"==120"	"==120"	"==0"	"==50"	"==120"	"==0"	"==0"
	temperature_alarm	"==0"	"==1"	"==0"	"==1"	"==0"	"==0"	"==0"	"==1"	"==0"	"==1"	"==1"	"==0"	"==0"	"==1"	"==0"	"==0"
	voltage_Error	"==0"	"==0"	"==0"	"==0"	"==1"	"==0"	"==1"	"==1"	"==1"	"==1"	"==1"	"==1"	"==1"	"==0"	"==1"	"==1"
		Outputs original software (for reference)															
	temperature	50	120		50	120		50	0	120	50	120		0	50	120	0
	temperature_alarm	0	1		0	1		0	1	0	1	1	120	0	1	0	0
	voltage_Error	0	0		0	1		0	1	1	0	1	0	1	1	0	1
		Mutants															
MUTANT 1																	
	voltage	12	12		12	12		20	20	12	20	12	20		12	20	20
	temp_1	110	120	120	120	120	110	110	110	120	120	120	120	120	110	110	120
	voltage	12	12		12	12	20	12	20	20	12	20	12	20	20	12	20
	temp_1	110	120	110	120	110	110	110	110	110	120	120	120	120	120	110	120
	temperature	110	120	110	120	110	110	0	120	110	120	120	120	0	110	120	110
	temperature_alarm	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	0
	voltage_error	0	0		0	0	0	1	1	1	0	1	0	1	1	0	1
PASS		FALSE	TRUE	FALSE	TRUE	FALSE	FALSE	TRUE	TRUE	FALSE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	TRUE
KILLED		TRUE															
MUTANT 2																	
	voltage	12	12		12	12		20	20	12	20	12	20		12	20	20
	temp_1	50	50	90	90	50	50	50	90	90	90	90	90	90	50	50	90
	voltage	12	12		12	12	20	12	20	20	12	20	12	20	20	12	20
	temp_1	50	90	50	90	50	50	50	50	90	90	90	90	90	90	50	90
	temperature	50	90	50	90	50	50	0	120	50	90	90	90	0	50	90	0
	temperature_alarm	0	0		0	0	0	0	1	0	0	0	0	0	0	0	0
	voltage_error	0	0		0	0	1	0	1	0	1	0	1	1	1	0	1
PASS		TRUE	FALSE	TRUE	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE	FALSE	TRUE	TRUE
KILLED		TRUE															
MUTANT 3																	
	voltage	15	15		15	15		20	20	15	20	15	20		15	20	20
	temp_1	50	50	120	120	50	50	50	120	120	120	120	120	50	50	120	50
	voltage	15	15		15	15	20	15	20	20	15	20	15	20	20	15	20
	temp_1	50	120	50	120	50	50	50	50	50	120	120	120	120	120	50	120
	temperature	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	temperature_alarm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	voltage_error	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PASS		FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	TRUE
KILLED		TRUE															
MUTANT 4																	
	voltage	9	9		9	9		20	20	9	20	9	20		9	20	20
	temp_1	50	50	120	120	50	50	50	120	120	120	120	120	50	50	120	50
	voltage	9	9		9	9	20	9	20	20	9	20	9	20	20	9	20
	temp_1	50	120	50	120	50	50	50	50	50	120	120	120	120	120	50	120
	temperature	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	temperature_alarm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	voltage_error	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	1
PASS		FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	TRUE
KILLED		TRUE															
MUTANT 5																	
	voltage	12	12		12	12		13	13	12		13	12		13	12	13
	temp_1	50	50	120	120	50	50	50	120	120	120	120	120	50	50	120	50
	voltage	12	12		12	12	20	12	13	13	12	13	12		13	12	13
	temp_1	50	120	50	120	50	50	50	50	50	120	120	120	120	120	50	120
	temperature	50	120	50	120	50	50	50	50	50	120	120	120	120	120	0	0
	temperature_alarm	0	1	0	1	0	0	0	1	0	1	1	1	1	1	0	0
	voltage_error	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
PASS		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE
KILLED		TRUE															
MUTANT 6																	
	voltage	12	12		12	12		20	20	12		20	12		20	20	20
	temp_1	50	50	120	120	50	50	50	120	120	120	120	120	50	50	120	50
	voltage	12	12		12	12	20	12	20	20	12	20	12	20	20	12	20
	temp_1	50	120	50	120	50	50	50	50	50	120	120	120	120	120	50	120
	temperature	50	120	50	120	50	50	0	120	50	120	120	120	0	50	120	0
	temperature_alarm	0	1	0	1	0	0	0	1	0	1	1	1	1	0	1	0
	voltage_error	0	0	0	0	1	0	1	1	0	1	1	1	1	1	0	1
PASS		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
KILLED		N/A: mutation opration not covered															
Mutation analysis Results		FMC	100,00%														
		MOC	83,33%														
		MS	100,00%														

TestSuite2				
Decription		Lack of message		
		Requirements coverage		
		Test 1	Test2	Test4
Message1 (TempMessage)	Temperature_Alarm_Absent	T	T	F
Message2 (TempMessage)	Temperature_Alarm_Absent	T	F	F
		Test 1	Test2	Test4
		Exchanged data		
Message1 (TempMessage)	temp_1	50	50	120
Message2 (TempMessage)	temp_1	50	120	50
		Oracles		
	temperature	"==50"	"==120"	"==50"
	temperature_alarm	"==0"	"==1"	"==1"
	voltage_Error	"==0"	"==0"	"==0"
		Outputs original software (for reference)		
	temperature	50	120	50
	temperature_alarm	0	1	0
	voltage_Error	0	0	0
		Mutants		
MUTANT 1				
	temp_1	110	120	120
	temp_1	110	120	110
	temperature	110	120	120
	temperature_alarm	1	1	1
	voltage_error	0	0	0
PASS		FALSE	TRUE	TRUE
KILLED		TRUE		