FaultModel	DataItem	Span	Туре	<b>FaultClass</b>	Min	Max	Threshold	Delta	State	Value
TempMessag	e 1	1	INT	VAT	NA	NA	100	10	NA	NA
TempMessag	e 1	1	INT	FVAT	NA	NA	100	10	NA	NA
BoardStatus	1	1	DOUBLE	VOR	10	14	NA	1	NA	NA
BoardStatus	1	1	DOUBLE	FVOR	10	14	NA	1	NA	NA

	BoardStatus	1		DOUBLE	FVOR	10		14	NA	1	NA	NA	l					
									TestSuit	te1								
	Decription	Complete suite																
				I=				Requi	irements	coverage				I=				
**	Walter France Abanes	Test 1	Test2	Test3	Test4	Test5 Te	st6		Test7	Test8	Test9	Test10	Test11	Test12	Test13	Test14	Test15	Test16
	Voltage_Error_Absent Temperature_Alarm_Absent	T	T	I .	E	T T		-	T T	E	r c	c	r c	r c	T	T	F .	T
Message3 (BoardStatus)	Voltage Error Absent	Ť	Ť	T	T.	F T		-	F	F	T	F	T	F	F	Ť	F	F
Message4 (TempMessage)	Temperature_Alarm_Absent	Т	F	T	F	т т			Т	Т	Т	F	F	F	F	F	T	F
		Test 1		Test3	Test4	Test5 Te	st6		Test7	Test8	Test9	Test10	Test11	Test12	Test13	Test14	Test15	Test16
	Exc	hanged da	ta	1														
Message1 (BoardStatus)	voltage	12	12		12	12		20			20	12	20	20	12		20	20
	temp_1	50 12			120	50 20		50 12	50 20		120 12	120	120	120	50		120 20	
Message3 (BoardStatus) Message4 (TempMessage)	voltage temp 1	50			120	50		50	50	50		120	120	120	120		50	
messages (rempiressage)	Oracles Oracles	, ,,,	1 220	30	120	30		50	30	30	50	110	120	110	120	110	30	120
	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"	"==1"	"==0"	"==1"	"==1"	"==0"	"==0"	"==1"	"==0"	"==0"
	voltage_Error	"==0"	"==0"	"==0"	"==0"	"==1" "=	=0"		"==1"	"==1"	"==0"	"==1"	"==0"	"==1"	"==1"	"==0"	"==1"	"==1"
					1				Output	s original s	oftware (for refe	rence)		0		1		ام ا
	temperature temperature_alarm	50	120	50	120	50		50 0	0		50	120	120	0	50	120 1	0	0
	voltage_Error	- 0			0	1		0	1	1	0	1 1	1	1	1		1	1
				-	-			,	Mutan	ts			-	-				
	MUTANT 1																	
	voltage	12			12	12		20	20	12	20	12	20	20	12		20	
	temp_1	110	120		120	110		110	110	120		120		120	110	110	120	110
	voltage	12			12	20		12	20			20	12	20	20		20	20
	temp_1	110	120		120	110		110	110	110	110	120	120	120	120		110	120
-	temperature	110	120	110	120	110		110	0		110	120	120	0	110	120	110	0
	temperature_alarm voltage_error	1		1	0	0		0	1		0	1	1	1	1	0	1	1
	PASS PASS	FALSE		FALSE	TRUE	FALSE	FALSE	Ĭ	TRUE		FALSE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	TRUE
	KILLED	i					-				TRUE							
	MUTANT 2																	
	voltage	12			12	12		20	20			12	20	20	12	20	20	
	temp_1	50 12		90	90	50		50	50		90 12	90	90	90	50		90	50
	voltage	50		50	12	20 50		12 50	20 50			20	12	20	20	12	20 50	20
	temp_1	50		50	90	50		50	0		50	90	90	90	50	90	0	0
	temperature temperature_alarm	30		30	90	0		0	0			90	90	0	0		0	
	voltage_error		0	0	0	1		0	1	1	0	1	0	1	1	0	1	1
	PASS	TRUE	FALSE	TRUE	FALSE	TRUE	TRUE		TRUE	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE	FALSE	TRUE	TRUE
	KILLED			•							TRUE							
																,		
	MUTANT 3	15								15								
	voltage	50	15	120	120	15 50		20 50	20 50	120	20 120	120	20 120	20 120	50	20 50	20 120	20 50
	temp_1 voltage	15	15	15	15	20		15	20		15	20	15	20	20		20	
	temp_1	50			120	50		50	50			120	120	120	120		50	
	temperature	C	0	0	0	0		0	0		0	0	0	0	0	0	0	0
	temperature_alarm	C	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	0	1	0	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	9		20	20	9	20	9	20	20	9	20	20	20
	temp_1	50	50	120	120	50		50	50	120	120	120	120	120	50		120	
	voltage	9	9	9	9	20		9	20	20	9	20	9	20	20	9	20	20
	temp_1	50	120	50	120	50		50			50	120	120	120	120	120	50	
	temperature	0	0	0	0	0		0	0		0	0	0	0	0	0	0	0
	temperature_alarm	1	1	0	0	0		0	0	1	0	1	0	0	1	0	0	0
	voltage_error PASS	FAISE	FALSE	FALSE	FALSE	FALSE	FALSE	-	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	TRUE
	KILLED	IALDE	IALJE	IALSE	IACI	IALJE	IALJE		INOE		TRUE	· ALSE	IALSE	INOL	IADE	IALJE	INOL	INOL
	MUTANT 5							J										
	voltage	12			12	12		14	14	12	14	12	14	14	12		14	14
	temp_1	50				50		50	50		120	120	120	120	50	50	120	50
	voltage	12 50		12	12 120	20 50		12 50	14 50	14 50	12 50	14 120	12 120	120	120	12 120	14 50	14 120
	temp_1 temperature	50				50		50	50	50	50	120	120	120	120	120	50	
	temperature_alarm	0		0		0		0				1	1 1	120	120	120	0	
	voltage_error	C		0	0	1		0	0	0	0	0	0	0	0	0	0	0
	PASS	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE		FALSE		TRUE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE
	KILLED								•		TRUE	•		_				
					1								r	T.				
	MUTANT 6					4.5		20										
	voltage	12 50		12	12 120	12 50		20 50	20 50		20 120	120	20 120	20 120	12 50		20 120	20 50
	temp_1 voltage	12		120	120	20		12	20	20	120	120 20	120	20	20		20	20
	temp_1	50				50		50		50		120	120	120	120		50	120
	temperature	50		50		50		50				120	120	0	50		0	0
	temperature_alarm	C		0	1	0		0	0		0	1	1	1	0		0	0
	voltage_error	C	0	0	0	1		0	1	1	0	1	0	1	1	0	1	1
	PASS	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE		TRUE		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
	KILLED							_	N/A:	mutation	opration not cove	ered						

| KILLED | | Mutation analysis Results | FMC | 100,00% | MOC | 83,33% | MS | 100,00% |

	TestSuite2									
	Decription Lack of message									
	Requirements coverage									
		Test2	Test3	Test4						
Message1 (TempMessage)	Temperature_Alarm_Absent	T	T	F	F					
Message2 (TempMessage)	Temperature_Alarm_Absent	T	F	T	F					
		Test 1 Test2		Test3	Test4					
	Exch	anged dat	a							
Message1 (TempMessage)	temp_1	50	50	120	120					
Message2 (TempMessage)	temp_1	50	120	50	120					
	Oracles									
	temperature	"==50"	"==120"	"==50"	"==120"					
	temperature_alarm	"==0"	"==1"	"==0"	"==1"					
	voltage_Error	"==0"	"==0"	"==0"	"==0"					
	Outputs original software (for reference)									
	temperature	50	120	50	120					
	temperature_alarm	0	1	0	1					
	voltage_Error	0 Muta	0	0						
	MUTANT 1									
	temp_1	110	120	120	120					
	temp_1	110	120	110	120					
	temperature	110	120	110	120					
	temperature_alarm	1	1	1	1					
	voltage_error	0	0	0	C					
	PASS	FALSE	TRUE	FALSE	TRUE					
	KILLED									
	MUTANT 2									
	temp_1	50	50	90	90					
	temp_1	50	90	50	90					
	temperature	50	90	50	90					
	temperature alarm	0	0	0	(					