
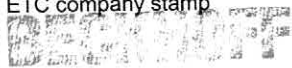


Appendix A: Test Record	
Vendor name	Microchip Technology Inc.
Vendor ID	0x 4D8
Product 1/2	Name: UNG8237-LAN9254 <small>like declared on test request</small>
	Type: Dig. In Development Board <small>e.g. Drive, Sensor, dig. I/O</small>
Product 2/2 <small>If family test</small>	Name: UNG8237-LAN9254
	Type: Dig-Out. Development Board
Date of test	2020/03/24 <small>format: yyyy/mm/dd</small>
Test number	0x 4D8_006 <small>provided by ETG</small>
Vendor presence	Name:
	Phone:
	Email:

Total test result		<input checked="" type="checkbox"/> passed	<input type="checkbox"/> failed
<small>All partial tests have to be passed to pass the complete test!</small>			
DuT 1	attached: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	<input checked="" type="checkbox"/> passed	<input type="checkbox"/> failed
DuT 2 <small>if family test</small>	attached: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	<input checked="" type="checkbox"/> passed	<input type="checkbox"/> failed
Comments <small>(use own, extra sheet)</small>	attached: <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <b>It is expected that all comments and CTT errors / warnings are resolved!</b>		

State of test	
Test closed	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, reason:
	Closed on date: 2020/03/24 <small>format: yyyy/mm/dd</small> Result: Passed

Confirmation of test record		
Tester 1	Name: Stephan Kohnen Signature: 	<b>ETC company stamp</b>  Automation GmbH & Co. KG EtherCAT Test Center (ETC) Grand Strand 100 91042, Muenchenberg, Germany www.ethercat.com
Tester 2 <small>(optional)</small>	Name: _____ Signature: _____	

Partial results		DuT1			DuT2 if family test		
		skipped	passed	failed	skipped	passed	failed
	Tests						
2. ESI	1-3		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
3. Protocol test with Conformance Test Tool (CTT)							
3.1. Protocol test with CTT – non DC mode	4-19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2. Protocol test with CTT – DC mode	20-35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Indicator (general)	36		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
4.1. Port labeling + L/A indicator							
4.1.1. IN port	37-46		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
4.1.2. First OUT port	47-55	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.3. Second OUT port	56-64	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.4. Third OUT port	65-73	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2. Indicator	74-76		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
4.2.1. RUN LED / RUN indication functionality of STATUS LED	77-87	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.2. RUN display indicator	88-92	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.3. ERROR LED / ERROR indication functionality of STATUS indicator	93-101	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.4. ERROR display indicator	102-104	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3. STATUS indicator	105-107	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Explicit Device Identification	108-117		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
5.1. IdentificationReg134 (Requesting ID)	118-122	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2. IdentificationAdo (Direct ID)	123-128	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.3. Legacy Mode (IdentificationAdo = 0x0012)	129-134	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.4. Extraneous selectors	135	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Distributed Clocks (DC)	136-140	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Miscellaneous	141-143		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
7.1 Miscellaneous (Error Counter)	144-149		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
8. Profile 5003 Semi Device Profile	150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Marking	151-153		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
10. Interoperability	154-155		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>





### 3. Protocol test with Conformance Test Tool (CTT)

Devices which are not needed for the test shall not be connected to CTT  
Warnings do not result in a failed test, though it is strongly recommended to fix warnings!

3.1 Protocol test with CTT – non DC mode			warnings*	passed	failed
<input type="checkbox"/>	SKIP tests 4-19 if DuT only supports DC modes				
>>	Instructions	<input checked="" type="checkbox"/> Provide ESI file to Conformance Test Tool <input checked="" type="checkbox"/> If supported, set Explicit Device ID selector to value 0x0005 <input checked="" type="checkbox"/> Set Configured Station Alias to value 0x0000 <input checked="" type="checkbox"/> Power cycle DuT <input checked="" type="checkbox"/> Re-start the CTT <input checked="" type="checkbox"/> connect at least one module (applies for gateways, bus couplers, modular devices, devices being configured by software modules, and similar) <input checked="" type="checkbox"/> Select any non-DC mode of DuT			
4	Test 1:	TF-1300 (EtherCAT Slave Information)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Default PDO configuration	TF-1100 (Data Link Layer)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Run test with standard configuration.	TF-1200 (EtherCAT State Machine) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7		TF-1201 (Explicit Device ID) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8		TF-2300 (Application Layer SDO Service) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9		TF-2301 (Application Layer Object Dictionary) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10		TF-2302 (CoE SDO Complete Access) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11		TF-4100 (Application Layer CiA402 OD) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input checked="" type="checkbox"/> Upload OD and Memory (register dump of ESC) of DuT <input checked="" type="checkbox"/> Save project as [Test number]_CTT_nonDC_1.ctp			
12	Test 2:	TF-1300 (EtherCAT Slave Information)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Default PDO configuration	TF-1100 (Data Link Layer)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	Run test with standard configuration again without re-connecting and without power cycling the DuT	TF-1200 (EtherCAT State Machine) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15		TF-1201 (Explicit Device ID) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16		TF-2300 (Application Layer SDO Service) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17		TF-2301 (Application Layer Object Dictionary) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18		TF-2302 (CoE SDO Complete Access) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19		TF-4100 (Application Layer CiA402 OD) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input checked="" type="checkbox"/> Upload OD and Memory of DuT <input checked="" type="checkbox"/> Save project as [Test number]_CTT_nonDC_2.ctp			

\*) amount of shown warnings by the CTT

3.2 Protocol test with CTT – DC mode			warnings*	passed	failed
<input type="checkbox"/>	SKIP tests 20-35 if DuT does not support DC mode				
>>	Instructions	<input checked="" type="checkbox"/> Provide ESI file to Conformance Test Tool <input checked="" type="checkbox"/> If supported, set Explicit Device ID selector to value 0x0005 <input checked="" type="checkbox"/> Set Configured Station Alias to value 0x0000 <input checked="" type="checkbox"/> Power cycle DuT <input checked="" type="checkbox"/> Re-start the CTT <input checked="" type="checkbox"/> connect at least one module (applies for gateways, bus couplers, modular devices, devices being configured by software modules, and similar) <input checked="" type="checkbox"/> Select any DC mode of DuT			
20	Test 1:	TF-1300 (EtherCAT Slave Information)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21	Default PDO configuration	TF-1100 (Data Link Layer)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
22	Run test with standard configuration.	TF-1200 (EtherCAT State Machine) (Skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
23		TF-1201 (Explicit Device ID) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
24		TF-2300 (Application Layer SDO Service) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
25		TF-2301 (Application Layer Object Dictionary) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26		TF-2302 (CoE SDO Complete Access) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
27		TF-4100 (Application Layer CiA402 OD) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input checked="" type="checkbox"/> Upload OD and Memory (register dump of ESC) of DuT <input checked="" type="checkbox"/> Save project as [Test number]_CTT_DC_1.ctp			
28	Test 2:	TF-1300 (EtherCAT Slave Information)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
29	Default PDO configuration	TF-1100 (Data Link Layer)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
30	Run test with standard configuration again without re-connecting and without power cycling the DuT	TF-1200 (EtherCAT State Machine) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
31		TF-1201 (Explicit Device ID) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
32		TF-2300 (Application Layer SDO Service) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
33		TF-2301 (Application Layer Object Dictionary) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
34		TF-2302 (CoE SDO Complete Access) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
35		TF-4100 (Application Layer CiA402 OD) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input checked="" type="checkbox"/> Upload OD and Memory of DuT <input checked="" type="checkbox"/> Save project as [Test number]_CTT_DC_2.ctp			

\*) amount of shown warnings by the CTT

4. Indicator (general)		passed	failed
36	<b>Non-EtherCAT labels clearly distinguished from EtherCAT specified terms</b> Terms which are reserved for EtherCAT related markings (ETG 1300/ETG 9001) shall not be used in a non EtherCAT specific context without clear distinction	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no

**4.1 Port labeling + L/A indicator**

			passed	failed																					
<b>4.1.1 IN port</b>																									
Definition of IN port: First port directly in front of the EtherCAT Processing Unit of the EtherCAT Slave Controller.																									
	Port information	Connector: <input checked="" type="checkbox"/> removable <input type="checkbox"/> not removable																							
37	Port usage	Correct assignment of IN port When only IN port is connected to the master Reg. 0x0110 4 shall be true	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no																					
38	Port labeling	Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>																					
<input type="checkbox"/> SKIP tests 39-40 if port has no labeling																									
39	Port labeling	Label obviously allocated to port <input checked="" type="checkbox"/> label close to port <input type="checkbox"/> label somewhere else, but still obviously allocated to port	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no																					
40		Passed if one of the following is true: <input checked="" type="checkbox"/> Correct labeling (no case sensitivity): <table style="margin-left: 20px;"> <tr> <td><input type="checkbox"/> ETHERCAT</td> <td> </td> <td><input checked="" type="checkbox"/> IN</td> </tr> <tr> <td><input type="checkbox"/> ECAT</td> <td> </td> <td></td> </tr> <tr> <td><input type="checkbox"/> ECT</td> <td> </td> <td></td> </tr> <tr> <td><input type="checkbox"/> EC</td> <td> </td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> (none)</td> <td> </td> <td></td> </tr> </table> <input type="checkbox"/> Unique labeling; port assignment described in device documentation Label: _____	<input type="checkbox"/> ETHERCAT		<input checked="" type="checkbox"/> IN	<input type="checkbox"/> ECAT			<input type="checkbox"/> ECT			<input type="checkbox"/> EC			<input checked="" type="checkbox"/> (none)			<input checked="" type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/> ETHERCAT		<input checked="" type="checkbox"/> IN																							
<input type="checkbox"/> ECAT																									
<input type="checkbox"/> ECT																									
<input type="checkbox"/> EC																									
<input checked="" type="checkbox"/> (none)																									
41	L/A indicator	Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>																					
<input type="checkbox"/> SKIP tests 42-46 if port has no L/A indicator																									
42	L/A indicator	Color: <input checked="" type="checkbox"/> Green <input type="checkbox"/> Other: _____																							
43		Passed if one of the following is true: <input type="checkbox"/> Indicator next to network interface; no labeling <input type="checkbox"/> Indicator next to network interface; correct labeling <input checked="" type="checkbox"/> Indicator not next to network interface; correct labeling (no case sensitivity): <table style="margin-left: 20px;"> <tr> <td><input type="checkbox"/> NETWORK</td> <td> </td> <td><input type="checkbox"/> LINK/ACTIVITY</td> </tr> <tr> <td><input type="checkbox"/> NET</td> <td> </td> <td><input checked="" type="checkbox"/> LINK/ACT</td> </tr> <tr> <td><input type="checkbox"/> ETHERCAT</td> <td> </td> <td><input type="checkbox"/> L/A</td> </tr> <tr> <td><input type="checkbox"/> ECAT</td> <td> </td> <td><input type="checkbox"/> LA</td> </tr> <tr> <td><input type="checkbox"/> ECT</td> <td> </td> <td></td> </tr> <tr> <td><input type="checkbox"/> EC</td> <td> </td> <td></td> </tr> <tr> <td><input type="checkbox"/> (none)</td> <td> </td> <td></td> </tr> </table> <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/> NETWORK		<input type="checkbox"/> LINK/ACTIVITY	<input type="checkbox"/> NET		<input checked="" type="checkbox"/> LINK/ACT	<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> L/A	<input type="checkbox"/> ECAT		<input type="checkbox"/> LA	<input type="checkbox"/> ECT			<input type="checkbox"/> EC			<input type="checkbox"/> (none)			<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> NETWORK		<input type="checkbox"/> LINK/ACTIVITY																							
<input type="checkbox"/> NET		<input checked="" type="checkbox"/> LINK/ACT																							
<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> L/A																							
<input type="checkbox"/> ECAT		<input type="checkbox"/> LA																							
<input type="checkbox"/> ECT																									
<input type="checkbox"/> EC																									
<input type="checkbox"/> (none)																									
44	L/A indicator states	No link → Off	<input checked="" type="checkbox"/>	<input type="checkbox"/>																					
45		Link, no activity → On	<input checked="" type="checkbox"/>	<input type="checkbox"/>																					
46		Link, activity → flickering	<input checked="" type="checkbox"/>	<input type="checkbox"/>																					

4.1.2 First OUT port			passed	failed
<input type="checkbox"/>	SKIP tests 47-55 if second port is not available			
	Port information	Connector: <input checked="" type="checkbox"/> removable <input type="checkbox"/> not removable		
47	Port labeling	Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SKIP tests 48-49 if port has no labeling			
48		Label obviously allocated to port <input checked="" type="checkbox"/> label close to port <input type="checkbox"/> label somewhere else, but still obviously allocated to port	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
49		Passed if one of the following is true: <input checked="" type="checkbox"/> Correct labeling (no case sensitivity): <input type="checkbox"/> ETHERCAT <input checked="" type="checkbox"/> OUT <input type="checkbox"/> ECAT    [ + ] <input type="checkbox"/> ECT <input type="checkbox"/> EC <input checked="" type="checkbox"/> (none) <input type="checkbox"/> Unique labeling; Port assignment described in device documentation Label: _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>
50	L/A indicator	Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SKIP tests 51-55 if port has no L/A Indicator			
51	L/A indicator	Color: <input checked="" type="checkbox"/> Green <input type="checkbox"/> Other: _____		
52		Passed if one of the following is true: <input type="checkbox"/> Indicator next to network interface; no labeling <input type="checkbox"/> Indicator next to network interface; correct labeling <input checked="" type="checkbox"/> Indicator not next to network interface; correct labeling (no case sensitivity): <input type="checkbox"/> NETWORK <input type="checkbox"/> LINK/ACTIVITY <input type="checkbox"/> NET    [ + ] <input checked="" type="checkbox"/> LINK/ACT <input type="checkbox"/> ETHERCAT <input type="checkbox"/> L/A <input type="checkbox"/> ECAT <input type="checkbox"/> LA <input type="checkbox"/> ECT <input type="checkbox"/> EC <input checked="" type="checkbox"/> (none) <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
53	L/A indicator states	No link    →    Off	<input checked="" type="checkbox"/>	<input type="checkbox"/>
54		Link, no activity    →    On	<input checked="" type="checkbox"/>	<input type="checkbox"/>
55		Link, activity    →    flickering	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.1.3 Second OUT port			passed	failed	
<input checked="" type="checkbox"/>	SKIP tests 56-64 if third port is not available				
	Port information	Connector: <input type="checkbox"/> removable <input type="checkbox"/> not removable			
56	Port labeling	Available: <input type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	SKIP tests 57-58 if port has no labeling				
57		Label obviously allocated to port <input type="checkbox"/> label close to port <input type="checkbox"/> label somewhere else, but still obviously allocated to port	<input type="checkbox"/> yes	<input type="checkbox"/> no	
58		Passed if one of the following is true: <input type="checkbox"/> Correct labeling (no case sensitivity): <input type="checkbox"/> ETHERCAT <input type="checkbox"/> OUT <input type="checkbox"/> ECAT [ + ] <input type="checkbox"/> ECT <input type="checkbox"/> EC <input type="checkbox"/> (none) <input type="checkbox"/> Unique labeling; Port assignment described in device documentation Label: _____	<input type="checkbox"/>	<input type="checkbox"/>	
59	L/A indicator	Available: <input type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	SKIP tests 60-64 if port has no L/A indicator				
60	L/A indicator	Color: <input type="checkbox"/> Green <input type="checkbox"/> Other: _____			
61		Passed if one of the following is true: <input type="checkbox"/> Indicator next to network interface; no labeling <input type="checkbox"/> Indicator next to network interface; correct labeling <input type="checkbox"/> Indicator not next to network interface; correct labeling (no case sensitivity): <input type="checkbox"/> NETWORK <input type="checkbox"/> LINK/ACTIVITY <input type="checkbox"/> NET [ + ] <input type="checkbox"/> LINK/ACT <input type="checkbox"/> ETHERCAT <input type="checkbox"/> L/A <input type="checkbox"/> ECAT <input type="checkbox"/> LA <input type="checkbox"/> ECT <input type="checkbox"/> EC <input type="checkbox"/> (none) <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/>	<input type="checkbox"/>	
62	L/A indicator states	No link → Off	<input type="checkbox"/>	<input type="checkbox"/>	
63		Link, no activity → On	<input type="checkbox"/>	<input type="checkbox"/>	
64		Link, activity → flickering	<input type="checkbox"/>	<input type="checkbox"/>	


4.1.4 Third OUT port			passed	failed	
<input checked="" type="checkbox"/>	SKIP tests 65-73 if fourth port is not available				
	Port information	Connector: <input type="checkbox"/> removable <input type="checkbox"/> not removable			
65	Port labeling	Available: <input type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	SKIP tests 66-67 if port has no labeling				
66		Label obviously allocated to port <input type="checkbox"/> label close to port <input type="checkbox"/> label somewhere else, but still obviously allocated to port	<input type="checkbox"/> yes	<input type="checkbox"/> no	
67		Passed if one of the following is true: <input type="checkbox"/> Correct labeling <input type="checkbox"/> ETHERCAT <input type="checkbox"/> OUT <input type="checkbox"/> ECAT [ + ] <input type="checkbox"/> ECT <input type="checkbox"/> EC <input type="checkbox"/> (none) <input type="checkbox"/> Unique labeling; Port assignment described in device documentation Label: _____	<input type="checkbox"/>	<input type="checkbox"/>	
68	L/A indicator	Available: <input type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	SKIP tests 69-73 if port has no L/A indicator				
69	L/A indicator	Color: <input type="checkbox"/> Green <input type="checkbox"/> Other: _____			
70		Passed if one of the following is true: <input type="checkbox"/> Indicator next to network interface; no labeling <input type="checkbox"/> Indicator next to network interface; correct labeling <input type="checkbox"/> Indicator not next to network interface; correct labeling (no case sensitivity): <input type="checkbox"/> NETWORK <input type="checkbox"/> LINK/ACTIVITY <input type="checkbox"/> NET [ + ] <input type="checkbox"/> LINK/ACT <input type="checkbox"/> ETHERCAT <input type="checkbox"/> L/A <input type="checkbox"/> ECAT <input type="checkbox"/> LA <input type="checkbox"/> ECT <input type="checkbox"/> EC <input type="checkbox"/> (none) <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/>	<input type="checkbox"/>	
71	L/A indicator states	No link → Off	<input type="checkbox"/>	<input type="checkbox"/>	
72		Link, no activity → On	<input type="checkbox"/>	<input type="checkbox"/>	
73		Link, activity → flickering	<input type="checkbox"/>	<input type="checkbox"/>	


4.2 Indicator			passed	failed
74	<b>RUN indicator</b> Either realized as LED or display	Available: <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, separate</li> <li><input type="checkbox"/> Yes, as part of STATUS indicator</li> <li><input checked="" type="checkbox"/> No</li> </ul> <u>Failed</u> if one of the following is true: <ul style="list-style-type: none"> <li><input type="checkbox"/> DuT is complex device with removable connector and no RUN indicator available</li> <li><input type="checkbox"/> More than one RUN indicator available showing different behavior else passed</li> </ul>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
75	<b>ERROR indicator</b>	Available: <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, separate</li> <li><input type="checkbox"/> Yes, as part of STATUS indicator</li> <li><input checked="" type="checkbox"/> No</li> </ul> <u>Failed</u> if one of the following is true: <ul style="list-style-type: none"> <li><input type="checkbox"/> More than one ERROR indicator available showing different behavior else passed</li> </ul>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
76	<b>STATUS indicator</b>	Available: <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, separate</li> <li><input checked="" type="checkbox"/> No</li> </ul> <u>Failed</u> if one of the following is true: <ul style="list-style-type: none"> <li><input type="checkbox"/> Also RUN indicator is available, and DuT does not fulfill exception for this test (refer to EX3, chapter 3.2)</li> <li><input type="checkbox"/> More than one STATUS indicator available showing different behavior else passed</li> </ul>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.2.1 RUN LED / RUN indication functionality of STATUS LED			passed	failed																					
also perform this test for the RUN indication of a STATUS indicator																									
<input checked="" type="checkbox"/>	SKIP tests 77-87 if DuT does not use a LED as RUN indicator																								
77	LED indicator	Green color	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
78		Well visible located	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
79		Well visible without removing parts	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
80		Easily seen in normal lighting	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
81		LED obviously allocated to EtherCAT	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
<input type="checkbox"/>	SKIP tests 82-87 if RUN and ERROR indicator combined to STATUS indicator																								
82	LED labeling	Passed if one of the following is true: <input type="checkbox"/> Correct labeling (no case sensitivity): <table border="0" style="margin-left: 20px;"> <tr> <td><input type="checkbox"/> NETWORK</td> <td style="border-left: 1px dashed black; padding-left: 10px;"></td> <td><input type="checkbox"/> RUN</td> </tr> <tr> <td><input type="checkbox"/> NET</td> <td style="border-left: 1px dashed black; padding-left: 10px;">[+]</td> <td><input type="checkbox"/> RN</td> </tr> <tr> <td><input type="checkbox"/> ETHERCAT</td> <td style="border-left: 1px dashed black; padding-left: 10px;"></td> <td></td> </tr> <tr> <td><input type="checkbox"/> ECAT</td> <td style="border-left: 1px dashed black; padding-left: 10px;"></td> <td></td> </tr> <tr> <td><input type="checkbox"/> ECT</td> <td style="border-left: 1px dashed black; padding-left: 10px;"></td> <td></td> </tr> <tr> <td><input type="checkbox"/> EC</td> <td style="border-left: 1px dashed black; padding-left: 10px;"></td> <td></td> </tr> <tr> <td><input type="checkbox"/> (none)</td> <td style="border-left: 1px dashed black; padding-left: 10px;"></td> <td></td> </tr> </table>	<input type="checkbox"/> NETWORK		<input type="checkbox"/> RUN	<input type="checkbox"/> NET	[+]	<input type="checkbox"/> RN	<input type="checkbox"/> ETHERCAT			<input type="checkbox"/> ECAT			<input type="checkbox"/> ECT			<input type="checkbox"/> EC			<input type="checkbox"/> (none)			<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/> NETWORK			<input type="checkbox"/> RUN																						
<input type="checkbox"/> NET	[+]	<input type="checkbox"/> RN																							
<input type="checkbox"/> ETHERCAT																									
<input type="checkbox"/> ECAT																									
<input type="checkbox"/> ECT																									
<input type="checkbox"/> EC																									
<input type="checkbox"/> (none)																									
		<input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)  Location <input type="checkbox"/> Next to indicator <input type="checkbox"/> Somewhere else on DuT due to space constrains																							
83	LED indicator states	INIT → Off	<input type="checkbox"/>	<input type="checkbox"/>																					
84		PRE-OPERATIONAL → Blinking	<input type="checkbox"/>	<input type="checkbox"/>																					
85		SAFE-OPERATIONAL → Single Flash	<input type="checkbox"/>	<input type="checkbox"/>																					
86		OPERATIONAL → On	<input type="checkbox"/>	<input type="checkbox"/>																					
87		BOOTSTRAP → Flickering or Off <input type="checkbox"/> skipped (Bootstrap not supported)	<input type="checkbox"/>	<input type="checkbox"/>																					

4.2.2 RUN display indicator			passed	failed
One of the allowed terms (right column) shall be displayed in the specific state (left column). All terms are not case sensitive.				
<input checked="" type="checkbox"/>	SKIP tests 88-92 if DuT does not use a display as RUN indicator			
88	Display indicator states (encircle used term)	INIT	"In"; "Init"; "1"	<input type="checkbox"/>
89		PRE-OPERATIONAL	"Po"; "PrOp"; "PreOp"; "Pre-Op"; "PreOperational"; "Pre-Operational"; "2"	<input type="checkbox"/>
90		SAFE-OPERATIONAL	"So"; "SfOp"; "SafeOP"; "Safe-Op"; "SafeOperational"; "Safe-Operational"; "4"	<input type="checkbox"/>
91		OPERATIONAL	"Op"; "Operational"; "6"	<input type="checkbox"/>
92		BOOTSTRAP <input type="checkbox"/> skipped (Bootstrap not supported)	"Bo"; "Boot"; "Bootstrap"; "3"	<input type="checkbox"/>

<b>4.2.4 ERROR display indicator</b>				passed	failed	
One of the allowed terms (right column) shall be displayed in the specific error state. All terms are not case sensitive. Alternatively a combination of the terms of the "ERROR LED labeling" and error code is allowed.						
<input checked="" type="checkbox"/>	SKIP tests 102-104 if DuT does not use a display as ERROR indicator					
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, test "TR_ErrInd_NoErr"				
102	Display indicator states	No error	(no error)	<input type="checkbox"/>	<input type="checkbox"/>	
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, one out of the following tests: <ul style="list-style-type: none"> <li><input type="checkbox"/> TR_ErrInd_InvConf (MbxOut SM)</li> <li><input type="checkbox"/> TR_ErrInd_InvConf (MbxIn SM)</li> <li><input type="checkbox"/> TR_ErrInd_InvConf (Output SM)</li> <li><input type="checkbox"/> TR_ErrInd_InvConf (Input SM)</li> </ul>				
103	Display indicator states (encircle used term) or use comment page for combination of "ERROR LED labeling" and error code	Invalid configuration  wrong SM 0/1 settings	Unique error code which is described within the documentation as "Invalid Configuration"  OR  "InvalidConfiguration"; "InvalConfig"; "InvCfg"	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	SKIP test 104 if DuT does only support DC modes					
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Assign output PDOs if available <input type="checkbox"/> Use EtherCAT master to set DuT to OP in non-DC mode <input type="checkbox"/> Disconnect cable				
104	Display indicator states (encircle used term) or use comment page for combination of "ERROR LED labeling" and error code	ECAT watchdog timeout  PD communication stopped	Unique error code which is described within the documentation as "ECAT watchdog timeout"  OR  "EcatWdTimeout"; "EcatWd"; "PdoWdTimeout"; "PdWdTimeout"; "PdoWd"; "PdWd"  Also possible if DuT has no output PDOs:  (no error)	<input type="checkbox"/>	<input type="checkbox"/>	


4.2.3 ERROR LED / ERROR indication functionality of STATUS indicator			passed	failed																					
	SKIP tests 93-101 if DuT not uses a LED as ERROR indicator																								
93	LED indicator	Red Color	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
94		Well visible located	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
95		Well visible without removing parts	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
96		Easily seen in normal lighting	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
97		LED obviously allocated to EtherCAT	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
<input type="checkbox"/>	SKIP tests 98-97 if RUN and ERROR indicator combined to STATUS indicator																								
98	LED labeling	<input type="checkbox"/> Correct labeling (no case sensitivity): <table border="0" style="width: 100%;"> <tr> <td><input type="checkbox"/> NETWORK</td> <td>  </td> <td><input type="checkbox"/> ERROR</td> </tr> <tr> <td><input type="checkbox"/> NET</td> <td>[ + ]</td> <td><input type="checkbox"/> ERR</td> </tr> <tr> <td><input type="checkbox"/> ETHERCAT</td> <td></td> <td><input type="checkbox"/> ER</td> </tr> <tr> <td><input type="checkbox"/> ECAT</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> ECT</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> EC</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> (none)</td> <td></td> <td></td> </tr> </table> <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/> NETWORK		<input type="checkbox"/> ERROR	<input type="checkbox"/> NET	[ + ]	<input type="checkbox"/> ERR	<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> ER	<input type="checkbox"/> ECAT			<input type="checkbox"/> ECT			<input type="checkbox"/> EC			<input type="checkbox"/> (none)			<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/> NETWORK			<input type="checkbox"/> ERROR																						
<input type="checkbox"/> NET	[ + ]	<input type="checkbox"/> ERR																							
<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> ER																							
<input type="checkbox"/> ECAT																									
<input type="checkbox"/> ECT																									
<input type="checkbox"/> EC																									
<input type="checkbox"/> (none)																									
	Location	<input type="checkbox"/> Next to indicator <input type="checkbox"/> Somewhere else on DuT due to space constrains																							
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, test "TR_ErrInd_NoErr"																							
99	LED indicator states	No error → Off	<input type="checkbox"/>	<input type="checkbox"/>																					
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, one out of the following tests: <input type="checkbox"/> TR_ErrInd_InvConf (MbxOut SM) <input type="checkbox"/> TR_ErrInd_InvConf (MbxIn SM) <input type="checkbox"/> TR_ErrInd_InvConf (Output SM) <input type="checkbox"/> TR_ErrInd_InvConf (Input SM)																							
100	LED indicator states	Invalid configuration → Blinking wrong SM 0/1 settings	<input type="checkbox"/>	<input type="checkbox"/>																					
<input type="checkbox"/>	SKIP test 101 if DuT only supports DC modes																								
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Assign output PDOs if available <input type="checkbox"/> Use EtherCAT master to set DuT to Op in non-DC mode <input type="checkbox"/> Disconnect cable																							
101	LED indicator states	ECAT watchdog timeout PD communication stopped. Passed if one of the following is true: <input type="checkbox"/> Double flash (+ Run LED single flash; SafeOp) Passed in all cases <input type="checkbox"/> Off Passed if DuT has no output PDOs	<input type="checkbox"/>	<input type="checkbox"/>																					

4.3 STATUS indicator			passed	failed																					
	SKIP tests 105-107 if RUN and ERROR indicator are not combined to STATUS indicator																								
105	Indicator	LED obviously allocated to EtherCAT	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
106	Labeling	<input type="checkbox"/> Correct labeling (no case sensitivity): <table style="margin-left: 20px; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> NETWORK</td> <td style="border-left: 1px dashed black; padding-left: 5px;"></td> <td><input type="checkbox"/> STATUS</td> </tr> <tr> <td><input type="checkbox"/> NET</td> <td style="border-left: 1px dashed black; padding-left: 5px; text-align: center;">[ + ]</td> <td><input type="checkbox"/> STAT</td> </tr> <tr> <td><input type="checkbox"/> ETHERCAT</td> <td style="border-left: 1px dashed black; padding-left: 5px;"></td> <td><input type="checkbox"/> ST</td> </tr> <tr> <td><input type="checkbox"/> ECAT</td> <td style="border-left: 1px dashed black; padding-left: 5px;"></td> <td></td> </tr> <tr> <td><input type="checkbox"/> ECT</td> <td style="border-left: 1px dashed black; padding-left: 5px;"></td> <td></td> </tr> <tr> <td><input type="checkbox"/> EC</td> <td style="border-left: 1px dashed black; padding-left: 5px;"></td> <td></td> </tr> <tr> <td><input type="checkbox"/> (none)</td> <td style="border-left: 1px dashed black; padding-left: 5px;"></td> <td></td> </tr> </table> <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/> NETWORK		<input type="checkbox"/> STATUS	<input type="checkbox"/> NET	[ + ]	<input type="checkbox"/> STAT	<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> ST	<input type="checkbox"/> ECAT			<input type="checkbox"/> ECT			<input type="checkbox"/> EC			<input type="checkbox"/> (none)			<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/> NETWORK		<input type="checkbox"/> STATUS																							
<input type="checkbox"/> NET	[ + ]	<input type="checkbox"/> STAT																							
<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> ST																							
<input type="checkbox"/> ECAT																									
<input type="checkbox"/> ECT																									
<input type="checkbox"/> EC																									
<input type="checkbox"/> (none)																									
		Location <input type="checkbox"/> Next to indicator <input type="checkbox"/> Somewhere else on DuT due to space constrains																							
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, test "TR_StatusInd_ErrRunPhaseShift" <input type="checkbox"/> Check if red indicator alters with green indicator																							
107	Indicator	RUN state displayed with a 180° phase shift to the ERROR state	<input type="checkbox"/> yes	<input type="checkbox"/> no																					

5. Explicit Device Identification			passed	failed
<p>When performing instruction "value != 0", each nibble in the value shall be different (e.g. 0x4321 or 0xA7B5) and shall be picked from the complete value range supported.</p> <p>To set Configured Station Alias, write the value into the corresponding EEPROM address and rewrite EEPROM CRC with the correct value, or use a configuration tool supporting EEPROM update (no EEPROM fields other than Configured Station Alias and CRC shall be written).</p> <p>Instructions shall be followed-<b>No</b> steps between.</p> <p>n.a. = not available</p>				
<input checked="" type="checkbox"/>	SKIP 108 if ESI element StationAliasSupported != REGISTER_SUPPORT			
108	ESI elements	ESI element IdentificationAdo = 0x0012	<input type="checkbox"/> yes	<input type="checkbox"/> no
<input checked="" type="checkbox"/>	SKIP 109 if ESI element StationAliasSupported != PROCESSDATA_SUPPORT			
109	ESI elements	ESI element IdentificationAdo = 0x1000	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input checked="" type="checkbox"/> If available, set Explicit Device ID-Selector = 0x0000 <input checked="" type="checkbox"/> Set Configured Station Alias in EEPROM != 0: 0x69EA [27114] <input checked="" type="checkbox"/> Power cycle DuT		
110	Configured StationAlias	Configured Station Alias can be successfully read from Reg. 0x0012:0x0013	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
<input checked="" type="checkbox"/>	SKIP 111-134 if Explicit Device ID is not supported (i.e. ESI element IdentificationReg134 = FALSE or n.a., IdentificationAdo = n.a. and StationAliasSupported = NOT_SUPPORTED or n.a.)			
111		ID-Selector is a hardware input device directly implemented on DuT	<input type="checkbox"/> yes	<input type="checkbox"/> no
112	ID-Selector	ID-Selector implemented as : <input type="checkbox"/> DIP switch <input type="checkbox"/> rotary switch <input type="checkbox"/> menu item on display <input type="checkbox"/> other: Allowed <b>max. value</b> : 0x _ _ _ _	<input type="checkbox"/> yes	<input type="checkbox"/> no
113		Value range is from 0 to <b>max. value</b> consecutively (without any gaps)	<input type="checkbox"/> yes	<input type="checkbox"/> no
114	ID-Selector Labeling	Labeling available (printed label on DuT or name on display menu item)	<input type="checkbox"/> yes	<input type="checkbox"/> no
115		Label obviously allocated to ID-Selector	<input type="checkbox"/> yes	<input type="checkbox"/> no
116		Correct labeling (no case sensitivity): <input type="checkbox"/> ETHERCAT              <input type="checkbox"/> ID <input type="checkbox"/> ECAT                      <input type="checkbox"/> DEVICE ID <input type="checkbox"/> EC                          <input type="checkbox"/> DEV ID <input type="checkbox"/> (none)                                <input type="checkbox"/> Only if display control: Unique labeling, meaning described in device documentation Label: _____	<input type="checkbox"/> yes	<input type="checkbox"/> no
117		Factor and numbering system (hex/dec/..) used to label each switch make clear which values are set	<input type="checkbox"/> yes	<input type="checkbox"/> no

5.1 IdentificationReg134 (Requesting ID)			passed	failed
<input type="checkbox"/>	SKIP 118-122 if ESI element IdentificationReg134 = FALSE or n.a.			
>>	Instructions	<input type="checkbox"/> Set DuT to Init <input type="checkbox"/> Set ID-Selector = 0x0000 <input type="checkbox"/> Set reg. 0x0120 = 0x0021		
118	ID value = 0x0000	Reg. 0x0130 = 0x21 Reg. 0x0134 = 0x0000	<input type="checkbox"/> ye s	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set ID-Selector to a new <b>value</b> != 0: 0x _ _ _ _		
119	No Request → no change in ID value	Reg. 0x0130 = 0x21 Reg. 0x0134 = 0x0000	<input type="checkbox"/> ye s	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set reg. 0x0120 = 0x0001 <input type="checkbox"/> Set reg. 0x0120 = 0x0021		
120	ID value	Reg. 0x0130 = 0x21 Reg. 0x0134 = <b>value</b>	<input type="checkbox"/> ye s	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set reg. 0x0120 = 0x0001 <input type="checkbox"/> Set ID-Selector to <b>max. value</b> <input type="checkbox"/> Set reg. 0x0120 = 0x0021		
121	Max. ID value	Reg. 0x0130 = 0x21 Reg. 0x0134 = <b>max. value</b>	<input type="checkbox"/> ye s	<input type="checkbox"/> no
<input type="checkbox"/>	SKIP 122 if Legacy Mode is supported (ESI element IdentificationAdo = 0x0012 or StationAliasSupported = REGISTER_SUPPORT)			
>>	Instructions	<input type="checkbox"/> Set Configured Station Alias in EEPROM != 0 and != <b>max. value</b> : 0x _ _ _ _ <input type="checkbox"/> power cycle DuT <input type="checkbox"/> Set DuT to Init <input type="checkbox"/> Set reg. 0x0120 = 0x0021		
122	Simultaneous use of Reg. 0x0134 and Config. Station Alias	Reg. 0x0130 = 0x21 Reg. 0x0134 = <b>max. value</b> Reg. 0x0012:0x0013 = value written to EEPROM	<input type="checkbox"/> ye s	<input type="checkbox"/> no

5.2 IdentificationAdo (Direct ID)			passed	failed
<input checked="" type="checkbox"/>	SKIP 123-128 if ESI element IdentificationAdo = n.a.			
123	Ado	Ado: 0x_____		
		ESI : IdentificationAdo : Ado		
124		Ado is in range: 0x0012:0x0013, 0x1000 - 0x1003, or 0x0F18 - 0x0F1F	<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/>	SKIP 125-128 if Legacy Mode is supported (ESI element IdentificationAdo == 0x0012 or StationAliasSupported = REGISTER_SUPPORT)			
>>	Instructions	<input type="checkbox"/> Set DuT to Init <input type="checkbox"/> Set ID-Selector = 0x0000		
125	ID value	ID value in Ado = 0x0000	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set ID-Selector to new <b>value</b> != 0: 0x_____		
126	New ID value	ID value in Ado = <b>value</b>	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set ID-Selector to <b>max. value</b>		
127	Max. ID value	ID value in Ado = <b>max. value</b>	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Set Configured Station Alias in EEPROM != 0: 0x_____		
		<input type="checkbox"/> Power cycle DuT		
128	Simultaneous use of IdentificationAdo and Config. Station Alias	ID value in Ado = <b>max. value</b> Reg. 0x0012:0x0013 = value written to EEPROM	<input type="checkbox"/> yes	<input type="checkbox"/> no

5.3 Legacy Mode (IdentificationAdo = 0x0012)			passed	failed
	SKIP 129-134 if Legacy Mode is not supported (ESI element IdentificationAdo != 0x0012 and StationAliasSupported != REGISTER_SUPPORT)			
>>	Instructions	<input type="checkbox"/> Set Configured Station Alias in EEPROM != 0: 0x _ _ _ _ <input type="checkbox"/> Set ID-Selector to <b>value</b> != 0 and != Configured Station Alias <input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Set DuT to PreOP		
129	Race condition procedure started	<input type="checkbox"/> Reg. 0x0012:0x0013 == <b>value</b> of ID Selector <input type="checkbox"/> Configured Station Alias in EEPROM = 0x0000	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Set DuT to SafeOP		
130	Error detection	<input type="checkbox"/> Reg. 0x0130 = 0x12 <input type="checkbox"/> Reg. 0x0134 = 0x61	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Set DuT to Init <input type="checkbox"/> Set DuT to SafeOP		
131	ID value	<input type="checkbox"/> DuT goes to SafeOP <input type="checkbox"/> Reg. 0x0012:0x0013 = <b>value</b> of ID-Selector <input type="checkbox"/> Configured Station Alias in EEPROM = 0x0000	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set ID Selector = <b>new value</b> , != 0 and != current value: 0x _ _ _ _		
132	No Reload → no change of ID value	Reg. 0x0012:0x0013 has not changed	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	a) If Reload Object 0x10E0 is supported <input type="checkbox"/> Reg. 0x0120 = 0x12 (set to PreOp) <input type="checkbox"/> Wait until Reg. 0x0130 == 0x02 (confirmed) <input type="checkbox"/> Object 0x10E0 SI 3 = 0  b) else <input type="checkbox"/> power cycle		
133	ID value	Reg. 0x0012:0x0013 = <b>new value</b> of ID Selector	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Set ID-Selector = 0x0000 <input type="checkbox"/> Set Configured Station Alias in EEPROM != 0: 0x _ _ _ _ <input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Set DuT to OP <input type="checkbox"/> Set ID-Selector != 0: 0x _ _ _ _		
134	No Error Detection in OP	Device stays in OP, Reg. 0x0012:0x0013 does not change	<input type="checkbox"/> yes	<input type="checkbox"/> no











5.4 Extraneous selectors		passed	failed
Check if Explicit Device Identification is implemented without corresponding proper indication in ESI and by labeling.			
<input type="checkbox"/>	SKIP 135 if Explicit Device ID is supported (i.e. ESI element IdentificationReg134 = TRUE or IdentificationAdd = REGISTER_SUPPORT or PROCESSDATA_SUPPORT or StationAliasSupported available)		
	<p>Instructions</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> For each hardware input device (dip-switch, rotary switch) available on DuT and which is not used for Explicit Device Identification nor clearly assigned to non-EtherCAT functionalities, set selector value != 0</li> <li><input checked="" type="checkbox"/> Set Configured Station Alias in EEPROM = 0x0000</li> <li><input checked="" type="checkbox"/> Power cycle DuT</li> <li><input checked="" type="checkbox"/> Set DuT to PreOp</li> <li><input checked="" type="checkbox"/> Set reg. 0x0120 = 0x0022</li> </ul>		
135	<p>Reg. 0x0130 bit 5 = 0</p> <p>Reg. 0x0134 = 0x0000</p> <p>Reg. 0x0012:0x0013 = 0x0000</p> <p>Reg. 0x1000 = 0x0000</p> <p><input type="checkbox"/> Not tested if 0x1000 is protected by a SyncManager</p>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no

6. Distributed Clocks (DC)			passed	failed	
Run DuT in DC mode to perform each DC test [N2]					
<input checked="" type="checkbox"/>	SKIP tests 136-140 if Distributed Clocks not supported (no ESI element EtherCATInfo : Descriptions : Devices : Device : DC : OpMode : AssignActivate available with value different from #x0) or <u>Device Emulation</u> is activated (Reg 0x0140.8 = true)				
>>	Instructions	Use master to set DuT to OP in DC mode Save ENI file [N3] Set register 0x0980 to 0x0000 manually			
136	DuT returns to ErrSafeOp with AL Status Code = 0x2C (or 0x1A) when DCs are disabled from master side [N4]			<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/>	SKIP tests 137-138 if test 136 is failed				
>>	Instructions	<input type="checkbox"/> Keep state reg. 0x130 = 0x14 (ErrSafeOp) <input type="checkbox"/> Set reg. 0x120 = 0x14 (ErrAck)			
137	DuT returns to SafeOp (reg. 0x130 = 0x04) with AL Status Code = 0x00			<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/>	SKIP test 138 if test 137 is failed				
>>	Instructions	<input type="checkbox"/> Keep state reg. 0x130 = 0x04 (SafeOp) <input type="checkbox"/> Set reg. 0x120 = 0x08 (Op)			
138	DuT returns to ErrSafeOp (reg. 0x130 = 0x14) with AL Status Code = 0x2d (0x1a) shortly before SafeopToOpTimeout exceeds			<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	If DuT supports dynamic cycle time (CoE object 0x1C3x SI 4 bit 14 = 1), then <ul style="list-style-type: none"> <li><input type="checkbox"/> Set DuT to Op with any cycle time</li> <li><input type="checkbox"/> Set object 0x1C3x SI 8 to "1"</li> <li><input type="checkbox"/> Read 0x1C3x:05 (= minimum cycle time in ns)</li> <li><input type="checkbox"/> Reset object 0x1C3x SI 8 to "0"</li> </ul> else <ul style="list-style-type: none"> <li><input type="checkbox"/> Set DuT to Op with any cycle time</li> <li><input type="checkbox"/> Read 0x1C3x:05 (= minimum cycle time in ns)</li> </ul>				
139	DuT can be run to OP with minimum cycle time (repeat test 3 times by restarting network/master) Minimum cycle time: _____ Value from: <ul style="list-style-type: none"> <li><input type="checkbox"/> 0x1C32:05</li> <li><input type="checkbox"/> 0x1C33:05</li> <li><input type="checkbox"/> Documentation</li> <li><input type="checkbox"/> Other: _____</li> </ul>			<input type="checkbox"/> yes	<input type="checkbox"/> no
140	DuT in process data communication when set to OP [N5] determined by: _____ <input type="checkbox"/> DuT does not support process data			<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	<input type="checkbox"/> Save configuration as [Test number]_DC.xml and configuration tool specific file format				

7. Miscellaneous			passed	failed	
141	Device Emulation Reg 0x0140.08	<input checked="" type="checkbox"/> On (1) <input type="checkbox"/> Off (0) On: failed if DuT supports mailbox communication (complex device)	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	
<input type="checkbox"/>	SKIP test 142-143 if DuT only supports DC modes				
142	DuT in process data communication when set to OP with no DCs activated [N5] determined by: <u>input</u> _____ <input type="checkbox"/> DuT does not support process data			<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input checked="" type="checkbox"/> Power cycle DuT <input checked="" type="checkbox"/> Set DuT to SafeOp in non-DC mode <input checked="" type="checkbox"/> Disconnect cable			
143	DuT remains in SAFE-OP without any error			<input type="checkbox"/> yes	<input type="checkbox"/> no

7.1 Miscellaneous (Error Counter)			skipped	passed	failed
>>	Instructions	<input checked="" type="checkbox"/> Connect at least one device to each port of DuT <input checked="" type="checkbox"/> Power-up network <input checked="" type="checkbox"/> Set network to Op <input checked="" type="checkbox"/> Skip test <u>only</u> if register(s) not supported by ESC			
144	DuT: PDI Error Counter (reg 0x030D) = 0		<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
145	DuT: all available Invalid Frame Counters < 10 <input checked="" type="checkbox"/> Port 0 (reg 0x0300) 0 <input checked="" type="checkbox"/> Port 1 (reg 0x0302) 0 <input type="checkbox"/> port not available <input type="checkbox"/> Port 2 (reg 0x0304) <input type="checkbox"/> port not available <input type="checkbox"/> Port 3 (reg 0x0306) <input type="checkbox"/> port not available		<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
146	Connected device(s): all available Invalid Frame Counter < 10 <input checked="" type="checkbox"/> Device (reg 0x030y) connected to DuT Port 0 7003 A 0 <input checked="" type="checkbox"/> Device (reg 0x0300) connected to DuT Port 1 7003 A 0 <input type="checkbox"/> DuT port 1 not available <input type="checkbox"/> Device (reg 0x0300) connected to DuT Port 2 <input type="checkbox"/> DuT port 2 not available <input type="checkbox"/> Device (reg 0x0300) connected to DuT Port 3 <input type="checkbox"/> DuT port 3 not available y = 2/4/6 depends on which OUT port is connected to the DuTs IN port		<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input checked="" type="checkbox"/> set register 0x0307: 0x0300 = 0x0 <input checked="" type="checkbox"/> set error counters of all connected devices to = 0x0 <input checked="" type="checkbox"/> wait at least 60 seconds			
147	DuT: all available Invalid Frame Counter = 0 <input checked="" type="checkbox"/> Port 0 (reg 0x0300) = 0 <input checked="" type="checkbox"/> Port 1 (reg 0x0302) = 0 <input type="checkbox"/> port not available <input type="checkbox"/> Port 2 (reg 0x0304) = 0 <input type="checkbox"/> port not available <input type="checkbox"/> Port 3 (reg 0x0306) = 0 <input type="checkbox"/> port not available		<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
148	Connected device(s): Invalid Frame Counter = 0 <input checked="" type="checkbox"/> Device (reg 0x030y) connected to DuT Port 0 = 0 <input checked="" type="checkbox"/> Device (reg 0x0300) connected to DuT Port 1 = 0 <input type="checkbox"/> DuT port 1 not available <input type="checkbox"/> Device (reg 0x0300) connected to DuT Port 2 = 0 <input type="checkbox"/> DuT port 2 not available <input type="checkbox"/> Device (reg 0x0300) connected to DuT Port 3 = 0 <input checked="" type="checkbox"/> DuT port 3 not available y = 2/4/6 depends on which OUT port is connected to the DuTs IN port		<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input checked="" type="checkbox"/> Set register 0x0310: 0x0313 = 0x0 <input checked="" type="checkbox"/> Wait at least 60 seconds			
149	Lost Link Counters (reg 0x0310 : 0x0313) = 0		<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	If one of the tests 145-149 failed: <input type="checkbox"/> Verified that error counters did not increment due to connected devices or cables (e.g. replace DuT by another device and check errors again). (Test shall be repeated with devices not generating errors).			

8. Profile 5003 Semi Device Profile			passed	failed
Check features specified by ETG.5003 Semiconductor Device Profile				
<input checked="" type="checkbox"/>	SKIP test 150 if slave does not support profile 5003 acc. to ESI, i.e. element ProfileType:ProfileNo OR ChannelInfo:ProfileNo <> 5003			
>>	<input type="checkbox"/> Save related files as [Test number]_CDP_XXXXX.*			
150	DuT passes all tests according to ETG.7000.2 Annex 5003.0001		<input type="checkbox"/>	<input type="checkbox"/> no

9. Marking			passed	failed
151	Logo position	Passed if at least one of the following is true: <input checked="" type="checkbox"/> EtherCAT logo on DuT <input type="checkbox"/> EtherCAT logo in documentation <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX2, chapter 3.2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SKIP test 152 if no logo available			
152	Logo	<input checked="" type="checkbox"/> Correct use of one of the following logos (encircle) <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;">    </div> <div style="text-align: center;">    </div> <div style="text-align: center;">  </div> </div> <input type="checkbox"/> DuT supports Safety over EtherCAT and one of the following logo is used (encircle) <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;">    </div> <div style="text-align: center;">    </div> <div style="text-align: center;">  </div> </div>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no

153	Trademark	<p>Term of trademark within documentation (only allowed literally as written below)</p> <p>Passed if one of the following is true:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> DuT is not a safety device and uses EtherCAT trademark term</li> <li><input type="checkbox"/> DuT is a safety device and uses EtherCAT trademark term and Safety over EtherCAT trademark term</li> <li><input type="checkbox"/> DuT is a safety device and uses combined EtherCAT and Safety over EtherCAT trademark term</li> </ul> <p><b>EtherCAT trademark term:</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> English: "EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany."</li> <li>OR</li> <li><input type="checkbox"/> English: "EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany."</li> <li><input type="checkbox"/> German: „EtherCAT® ist eine eingetragene Marke und patentierte Technologie lizenziert durch die Beckhoff Automation GmbH, Deutschland."</li> <li><input type="checkbox"/> French: „EtherCAT® est une marque déposée et une technologie brevetée sous licence de Beckhoff Automation GmbH, Allemagne."</li> <li><input type="checkbox"/> Italian: „EtherCAT® è un marchio registrato, la tecnologia è brevettata ed è concessa in licenza da Beckhoff Automation GmbH, Germania."</li> <li><input type="checkbox"/> Spanish: „EtherCAT® es una marca registrada y una tecnología patentada, bajo licencia de Beckhoff Automation GmbH, Alemania."</li> <li><input type="checkbox"/> Japanese: „EtherCAT®は、ドイツ Beckhoff Automation GmbH によりライセンスされた特許取得済み技術であり登録商標です。”</li> <li><input type="checkbox"/> Korean: „EtherCAT® 독일 Beckhoff Automation GmbH 의 허가를 받은 등록 상표이자 특허 기술입니다.”</li> <li><input type="checkbox"/> Chinese: „EtherCAT® 是注册商标和专利技术，由德国倍福自动化有限公司授权。”</li> </ul> <p><b>Safety over EtherCAT trademark term:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> English: "Safety over EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany."</li> <li>OR</li> <li><input type="checkbox"/> English: "Safety over EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany."</li> <li><input type="checkbox"/> German: „Safety over EtherCAT® ist eine eingetragene Marke und patentierte Technologie lizenziert durch die Beckhoff Automation GmbH, Deutschland."</li> <li><input type="checkbox"/> French: „Safety over EtherCAT® est une marque déposée et une technologie brevetée sous licence de Beckhoff Automation GmbH, Allemagne."</li> <li><input type="checkbox"/> Italian: „Safety over EtherCAT® è un marchio registrato, la tecnologia è brevettata ed è concessa in licenza da Beckhoff Automation GmbH, Germania."</li> <li><input type="checkbox"/> Spanish: „Safety over EtherCAT® es una marca registrada y una tecnología patentada, bajo licencia de Beckhoff Automation GmbH, Alemania."</li> <li><input type="checkbox"/> Japanese: „Safety over EtherCAT®は、ドイツ Beckhoff Automation GmbH によりライセンスされた特許取得済み技術であり登録商標です。”</li> <li><input type="checkbox"/> Korean: „Safety over EtherCAT® 독일 Beckhoff Automation GmbH 의 허가를 받은 등록 상표이자 특허 기술입니다.”</li> <li><input type="checkbox"/> Chinese: „Safety over EtherCAT® 是注册商标和专利技术，由德国倍福自动化有限公司授权。”</li> </ul> <p><b>Combined EtherCAT and Safety over EtherCAT trademark term:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> English: "EtherCAT® and Safety over EtherCAT® are registered trademarks and patented technologies, licensed by Beckhoff Automation GmbH, Germany."</li> <li><input type="checkbox"/> German: "EtherCAT® und Safety over EtherCAT® sind eingetragene Marken und patentierte Technologien lizenziert durch die Beckhoff Automation GmbH, Deutschland."</li> <li><input type="checkbox"/> French: « EtherCAT® et Safety over EtherCAT® sont des marques déposées et des technologies brevetées sous licence de Beckhoff Automation GmbH, Allemagne ».</li> <li><input type="checkbox"/> Italian: "EtherCAT® e SafetyoverEtherCAT® sono marchi registrati e tecnologie brevettate, concesse in licenza da Beckhoff Automation GmbH, Germania."</li> <li><input type="checkbox"/> Spanish: EtherCAT® y Safety over EtherCAT® son marcas registradas y tecnologías patentadas, bajo licencia de Beckhoff Automation GmbH, Alemania.</li> </ul>	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
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	<input type="checkbox"/> <b>Japanese:</b> "EtherCAT® および Safety over EtherCAT® は登録商標かつ特許取得済みの技術であり、Beckhoff Automation GmbH (ドイツ) の許諾を受けています。" <input type="checkbox"/> <b>Korean:</b> "EtherCAT® 과 EtherCAT®의 안전성은 독일 Beckhoff Automation GmbH 의 허가를 받은 등록 상표이자 특허 기술입니다." <input type="checkbox"/> <b>Chinese:</b> "EtherCAT®与 Safety over EtherCAT®是注册商标和专利技术，由德國倍福自动化有限公司授权。"		
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<b>10. Interoperability</b>			passed	failed
For this test use any EtherCAT Configuration Tool				
>>	Instructions	<input checked="" type="checkbox"/> Connect DuT to the Interoperability network <input checked="" type="checkbox"/> Power cycle DuT and all other connected devices <input checked="" type="checkbox"/> Open a new Configuration Tool/ Master project		
154	All devices can be scanned successfully		<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
155	DuT can be stepped manually to all states supported [N6]		<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
>>	<input checked="" type="checkbox"/> Save configuration as [Test number]_Interop.xml and configuration tool specific file format			



0. Test Environment Detail	
XML editor Used for testing ESI file against schema (test 1)	Name: <u>Altova XML Spy</u>
	Version: <u>2013 rel. 2 sp. 2</u>
XML schema Used for testing ESI file against schema (test 1)	Version: <u>1.15</u>
EtherCAT Configuration Tool [N1]	Vendor name: <u>Beckhoff Automation</u>
	Vendor ID: <u>0x 2</u>
	Tool name: <u>TwinCAT System Manager</u>
	Version: <u>2.11 (Build 2269)</u>
EtherCAT Master Software	Vendor name: <u>Beckhoff Automation</u>
	Vendor ID: <u>0x 2</u>
	Tool name: <u>TwinCAT NCI</u>
	Version: <u>2.11 (Build 2252)</u>
Conformance Test Tool	Tool Version: <u>2.2.1.0</u>
	Test Cases Version: <ul style="list-style-type: none"> <li>• TF-F000 (Test Record Help File) v. <u>1.1.0</u></li> <li>• TF- v. _____</li> <li>• TF- v. _____</li> </ul>



### 3. Protocol test with Conformance Test Tool (CTT)

Devices which are not needed for the test shall not be connected to CTT.  
Warnings do not result in a failed test, though it is strongly recommended to fix warnings!

3.1 Protocol test with CTT – non DC mode			warnings*	passed	failed
<input type="checkbox"/> SKIP tests 4-19 if DuT only supports DC modes					
>>	Instructions	<input checked="" type="checkbox"/> Provide ESI file to Conformance Test Tool <input checked="" type="checkbox"/> If supported, set Explicit Device ID selector to value 0x0005 <input checked="" type="checkbox"/> Set Configured Station Alias to value 0x0000 <input checked="" type="checkbox"/> Power cycle DuT <input checked="" type="checkbox"/> Re-start the CTT <input checked="" type="checkbox"/> connect at least one module (applies for gateways, bus couplers, modular devices, devices being configured by software modules, and similar) <input checked="" type="checkbox"/> Select any non-DC mode of DuT			
4	Test 1:	TF-1300 (EtherCAT Slave Information)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Default PDO configuration	TF-1100 (Data Link Layer)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Run test with standard configuration.	TF-1200 (EtherCAT State Machine) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7		TF-1201 (Explicit Device ID) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8		TF-2300 (Application Layer SDO Service) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9		TF-2301 (Application Layer Object Dictionary) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10		TF-2302 (CoE SDO Complete Access) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11		TF-4100 (Application Layer CiA402 OD) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input checked="" type="checkbox"/> Upload OD and Memory (register dump of ESC) of DuT <input checked="" type="checkbox"/> Save project as [Test number]_CTT_nonDC_1.ctp			
12	Test 2:	TF-1300 (EtherCAT Slave Information)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Default PDO configuration	TF-1100 (Data Link Layer)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	Run test with standard configuration again without re-connecting and without power cycling the DuT	TF-1200 (EtherCAT State Machine) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15		TF-1201 (Explicit Device ID) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16		TF-2300 (Application Layer SDO Service) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17		TF-2301 (Application Layer Object Dictionary) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18		TF-2302 (CoE SDO Complete Access) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19		TF-4100 (Application Layer CiA402 OD) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input checked="" type="checkbox"/> Upload OD and Memory of DuT <input checked="" type="checkbox"/> Save project as [Test number]_CTT_nonDC_2.ctp			

\*) amount of shown warnings by the CTT

3.2 Protocol test with CTT – DC mode			warnings*	passed	failed
<input type="checkbox"/>	SKIP tests 20-35 if DuT does not support DC mode				
>>	Instructions	<input checked="" type="checkbox"/> Provide ESI file to Conformance Test Tool <input checked="" type="checkbox"/> If supported, set Explicit Device ID selector to value 0x0005 <input checked="" type="checkbox"/> Set Configured Station Alias to value 0x0000 <input checked="" type="checkbox"/> Power cycle DuT <input checked="" type="checkbox"/> Re-start the CTT <input checked="" type="checkbox"/> connect at least one module (applies for gateways, bus couplers, modular devices, devices being configured by software modules, and similar) <input checked="" type="checkbox"/> Select any DC mode of DuT			
20	Test 1:	TF-1300 (EtherCAT Slave Information)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21	Default PDO configuration	TF-1100 (Data Link Layer)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
22	Run test with standard configuration.	TF-1200 (EtherCAT State Machine) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
23		TF-1201 (Explicit Device ID) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
24		TF-2300 (Application Layer SDO Service) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
25		TF-2301 (Application Layer Object Dictionary) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26		TF-2302 (CoE SDO Complete Access) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
27		TF-4100 (Application Layer CiA402 OD) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input checked="" type="checkbox"/> Upload OD and Memory (register dump of ESC) of DuT <input checked="" type="checkbox"/> Save project as [Test number]_CTT_DC_1.ctp			
28	Test 2:	TF-1300 (EtherCAT Slave Information)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
29	Default PDO configuration	TF-1100 (Data Link Layer)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
30	Run test with standard configuration again without re-connecting and without power cycling the DuT	TF-1200 (EtherCAT State Machine) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
31		TF-1201 (Explicit Device ID) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
32		TF-2300 (Application Layer SDO Service) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
33		TF-2301 (Application Layer Object Dictionary) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
34		TF-2302 (CoE SDO Complete Access) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
35		TF-4100 (Application Layer CiA402 OD) (skipped)	/	<input checked="" type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input checked="" type="checkbox"/> Upload OD and Memory of DuT <input checked="" type="checkbox"/> Save project as [Test number]_CTT_DC_2.ctp			

\*) amount of shown warnings by the CTT

4. Indicator (general)			passed	failed
36	Non-EtherCAT labels clearly distinguished from EtherCAT specified terms	Terms which are reserved for EtherCAT related markings (ETG.1300/ETG.9001) shall not be used in a non EtherCAT specific context without clear distinction	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.1 Port labeling + L/A indicator			passed	failed
<b>4.1.1 IN port</b> Definition of IN port: First port directly in front of the EtherCAT Processing Unit of the EtherCAT Slave Controller.				
	Port information	Connector: <input checked="" type="checkbox"/> removable <input type="checkbox"/> not removable		
37	Port usage	<b>Correct assignment of IN port</b> When only IN port is connected to the master Reg. 0x0110 4 shall be true	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
38	Port labeling	Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SKIP tests 39-40 if port has no labeling				
39	Port labeling	<b>Label obviously allocated to port</b> <input checked="" type="checkbox"/> label close to port <input type="checkbox"/> label somewhere else, but still obviously allocated to port	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
40		<b>Passed if one of the following is true:</b> <input checked="" type="checkbox"/> <b>Correct labeling (no case sensitivity):</b> <input type="checkbox"/> ETHERCAT   <input checked="" type="checkbox"/> IN <input type="checkbox"/> ECAT   [+] <input type="checkbox"/> ECT <input type="checkbox"/> EC <input checked="" type="checkbox"/> (none) <input type="checkbox"/> <b>Unique labeling; port assignment described in device documentation</b> Label: _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>
41	L/A indicator	Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SKIP tests 42-46 if port has no L/A indicator				
42	L/A indicator	Color: <input checked="" type="checkbox"/> Green <input type="checkbox"/> Other: _____		
43		<b>Passed if one of the following is true:</b> <input checked="" type="checkbox"/> Indicator next to network interface; no labeling <input type="checkbox"/> Indicator next to network interface; correct labeling <input type="checkbox"/> Indicator not next to network interface; correct labeling (no case sensitivity): <input type="checkbox"/> NETWORK   <input type="checkbox"/> LINK/ACTIVITY <input type="checkbox"/> NET   [+] <input type="checkbox"/> ETHERCAT   <input checked="" type="checkbox"/> LINK/ACT <input type="checkbox"/> ECAT   <input type="checkbox"/> L/A <input type="checkbox"/> ECT   <input type="checkbox"/> LA <input type="checkbox"/> EC <input checked="" type="checkbox"/> (none) <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
44	L/A indicator states	No link → Off	<input checked="" type="checkbox"/>	<input type="checkbox"/>
45		Link, no activity → On	<input checked="" type="checkbox"/>	<input type="checkbox"/>
46		Link, activity → flickering	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.1.2 First OUT port			passed	failed
<input type="checkbox"/>	SKIP tests 47-55 if second port is not available			
	Port information	Connector: <input checked="" type="checkbox"/> removable <input type="checkbox"/> not removable		
47	Port labeling	Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SKIP tests 48-49 if port has no labeling			
48		Label obviously allocated to port <input checked="" type="checkbox"/> label close to port <input type="checkbox"/> label somewhere else, but still obviously allocated to port	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
49		Passed if one of the following is true: <input checked="" type="checkbox"/> Correct labeling (no case sensitivity): <input type="checkbox"/> ETHERCAT <input type="checkbox"/> ECAT <input type="checkbox"/> ECT <input type="checkbox"/> EC <input checked="" type="checkbox"/> (none) <input type="checkbox"/> Unique labeling; Port assignment described in device documentation Label: _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>
50	L/A indicator	Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SKIP tests 51-55 if port has no L/A indicator			
51	L/A indicator	Color: <input checked="" type="checkbox"/> Green <input type="checkbox"/> Other: _____		
52		Passed if one of the following is true: <input type="checkbox"/> Indicator next to network interface; no labeling <input type="checkbox"/> Indicator next to network interface; correct labeling <input type="checkbox"/> Indicator not next to network interface; correct labeling (no case sensitivity): <input type="checkbox"/> NETWORK <input type="checkbox"/> NET <input type="checkbox"/> ETHERCAT <input type="checkbox"/> ECAT <input type="checkbox"/> ECT <input type="checkbox"/> EC <input checked="" type="checkbox"/> (none) <input type="checkbox"/> LINK/ACTIVITY <input checked="" type="checkbox"/> LINK/ACT <input type="checkbox"/> L/A <input type="checkbox"/> LA <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
53	L/A indicator states	No link → Off	<input checked="" type="checkbox"/>	<input type="checkbox"/>
54		Link, no activity → On	<input checked="" type="checkbox"/>	<input type="checkbox"/>
55		Link, activity → flickering	<input checked="" type="checkbox"/>	<input type="checkbox"/>


4.1.3 Second OUT port			passed	failed	
<input checked="" type="checkbox"/>	SKIP tests 56-64 if third port is not available				
	Port information	Connector: <input type="checkbox"/> removable <input type="checkbox"/> not removable			
56	Port labeling	Available: <input type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	SKIP tests 57-58 if port has no labeling				
57		Label obviously allocated to port <input type="checkbox"/> label close to port <input type="checkbox"/> label somewhere else, but still obviously allocated to port	<input type="checkbox"/> yes	<input type="checkbox"/> no	
58		Passed if one of the following is true: <input type="checkbox"/> Correct labeling (no case sensitivity): <input type="checkbox"/> ETHERCAT   <input type="checkbox"/> OUT <input type="checkbox"/> ECAT   [+] <input type="checkbox"/> ECT   <input type="checkbox"/> EC   <input type="checkbox"/> (none)   <input type="checkbox"/> Unique labeling; Port assignment described in device documentation Label: _____	<input type="checkbox"/>	<input type="checkbox"/>	
59	L/A indicator	Available: <input type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	SKIP tests 60-64 if port has no L/A indicator				
60	L/A indicator	Color: <input type="checkbox"/> Green <input type="checkbox"/> Other: _____			
61		Passed if one of the following is true: <input type="checkbox"/> Indicator next to network interface; no labeling <input type="checkbox"/> Indicator next to network interface; correct labeling <input type="checkbox"/> Indicator not next to network interface; correct labeling (no case sensitivity): <input type="checkbox"/> NETWORK   <input type="checkbox"/> LINK/ACTIVITY <input type="checkbox"/> NET   [+] <input type="checkbox"/> ETHERCAT   <input type="checkbox"/> LINK/ACT <input type="checkbox"/> ECAT   <input type="checkbox"/> L/A <input type="checkbox"/> ECT   <input type="checkbox"/> LA <input type="checkbox"/> EC   <input type="checkbox"/> (none)   <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/>	<input type="checkbox"/>	
62	L/A indicator states	No link → Off	<input type="checkbox"/>	<input type="checkbox"/>	
63		Link, no activity → On	<input type="checkbox"/>	<input type="checkbox"/>	
64		Link, activity → flickering	<input type="checkbox"/>	<input type="checkbox"/>	

4.1.4 Third OUT port			passed	failed																					
<input checked="" type="checkbox"/>	SKIP tests 65-73 if fourth port is not available																								
	Port information	Connector: <input type="checkbox"/> removable <input type="checkbox"/> not removable																							
65	Port labeling	Available: <input type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input type="checkbox"/>	<input type="checkbox"/>																					
<input type="checkbox"/>	SKIP tests 66-67 if port has no labeling																								
66		Label obviously allocated to port <input type="checkbox"/> label close to port <input type="checkbox"/> label somewhere else, but still obviously allocated to port	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
67		Passed if one of the following is true: <input type="checkbox"/> Correct labeling <table style="margin-left: 20px;"> <tr> <td><input type="checkbox"/> ETHERCAT</td> <td> </td> <td><input type="checkbox"/> OUT</td> </tr> <tr> <td><input type="checkbox"/> ECAT</td> <td> </td> <td></td> </tr> <tr> <td><input type="checkbox"/> ECT</td> <td> </td> <td></td> </tr> <tr> <td><input type="checkbox"/> EC</td> <td> </td> <td></td> </tr> <tr> <td><input type="checkbox"/> (none)</td> <td> </td> <td></td> </tr> </table> <input type="checkbox"/> Unique labeling; Port assignment described in device documentation Label: _____	<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> OUT	<input type="checkbox"/> ECAT			<input type="checkbox"/> ECT			<input type="checkbox"/> EC			<input type="checkbox"/> (none)			<input type="checkbox"/>	<input type="checkbox"/>						
<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> OUT																							
<input type="checkbox"/> ECAT																									
<input type="checkbox"/> ECT																									
<input type="checkbox"/> EC																									
<input type="checkbox"/> (none)																									
68	L/A indicator	Available: <input type="checkbox"/> Yes <input type="checkbox"/> No Yes: passed No: failed if port has removable connector, else passed	<input type="checkbox"/>	<input type="checkbox"/>																					
<input type="checkbox"/>	SKIP tests 69-73 if port has no L/A indicator																								
69	L/A indicator	Color: <input type="checkbox"/> Green <input type="checkbox"/> Other: _____																							
70		Passed if one of the following is true: <input type="checkbox"/> Indicator next to network interface; no labeling <input type="checkbox"/> Indicator next to network interface; correct labeling <input type="checkbox"/> Indicator not next to network interface; correct labeling (no case sensitivity): <table style="margin-left: 20px;"> <tr> <td><input type="checkbox"/> NETWORK</td> <td> </td> <td><input type="checkbox"/> LINK/ACTIVITY</td> </tr> <tr> <td><input type="checkbox"/> NET</td> <td> </td> <td><input type="checkbox"/> LINK/ACT</td> </tr> <tr> <td><input type="checkbox"/> ETHERCAT</td> <td> </td> <td><input type="checkbox"/> L/A</td> </tr> <tr> <td><input type="checkbox"/> ECAT</td> <td> </td> <td><input type="checkbox"/> LA</td> </tr> <tr> <td><input type="checkbox"/> ECT</td> <td> </td> <td></td> </tr> <tr> <td><input type="checkbox"/> EC</td> <td> </td> <td></td> </tr> <tr> <td><input type="checkbox"/> (none)</td> <td> </td> <td></td> </tr> </table> <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/> NETWORK		<input type="checkbox"/> LINK/ACTIVITY	<input type="checkbox"/> NET		<input type="checkbox"/> LINK/ACT	<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> L/A	<input type="checkbox"/> ECAT		<input type="checkbox"/> LA	<input type="checkbox"/> ECT			<input type="checkbox"/> EC			<input type="checkbox"/> (none)			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> NETWORK		<input type="checkbox"/> LINK/ACTIVITY																							
<input type="checkbox"/> NET		<input type="checkbox"/> LINK/ACT																							
<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> L/A																							
<input type="checkbox"/> ECAT		<input type="checkbox"/> LA																							
<input type="checkbox"/> ECT																									
<input type="checkbox"/> EC																									
<input type="checkbox"/> (none)																									
71	L/A indicator states	No link → Off	<input type="checkbox"/>	<input type="checkbox"/>																					
72		Link, no activity → On	<input type="checkbox"/>	<input type="checkbox"/>																					
73		Link, activity → flickering	<input type="checkbox"/>	<input type="checkbox"/>																					

4.2 Indicator			passed	failed
74	RUN indicator Either realized as LED or display	Available: <input type="checkbox"/> Yes, separate <input type="checkbox"/> Yes, as part of STATUS indicator <input checked="" type="checkbox"/> No  <u>Failed</u> if one of the following is true: <input type="checkbox"/> DuT is complex device with removable connector and no RUN indicator available <input type="checkbox"/> More than one RUN indicator available showing different behavior else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
75	ERROR indicator	Available: <input type="checkbox"/> Yes, separate <input type="checkbox"/> Yes, as part of STATUS indicator <input checked="" type="checkbox"/> No  <u>Failed</u> if one of the following is true: <input type="checkbox"/> More than one ERROR indicator available showing different behavior else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
76	STATUS indicator	Available: <input type="checkbox"/> Yes, separate <input checked="" type="checkbox"/> No  <u>Failed</u> if one of the following is true: <input type="checkbox"/> Also RUN indicator is available, and DuT does not fulfill exception for this test (refer to EX3, chapter 3.2) <input type="checkbox"/> More than one STATUS indicator available showing different behavior else passed	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.2.1 RUN LED / RUN indication functionality of STATUS LED			passed	failed
also perform this test for the RUN indication of a STATUS indicator				
<input checked="" type="checkbox"/>	SKIP tests 77-87 if DuT does not use a LED as RUN indicator			
77	LED indicator	Green color	<input type="checkbox"/>	<input type="checkbox"/>
78		Well visible located	<input type="checkbox"/>	<input type="checkbox"/>
79		Well visible without removing parts	<input type="checkbox"/>	<input type="checkbox"/>
80		Easily seen in normal lighting	<input type="checkbox"/>	<input type="checkbox"/>
81		LED obviously allocated to EtherCAT	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SKIP tests 82-87 if RUN and ERROR indicator combined to STATUS indicator			
82	LED labeling	Passed if one of the following is true: <input type="checkbox"/> Correct labeling (no case sensitivity): <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> NETWORK  <input type="checkbox"/> NET  <input type="checkbox"/> ETHERCAT  <input type="checkbox"/> ECAT  <input type="checkbox"/> ECT  <input type="checkbox"/> EC  <input type="checkbox"/> (none)           </div> <div style="width: 45%; border-left: 1px dashed black; padding-left: 5px;"> <input type="checkbox"/> RUN  <input type="checkbox"/> RN           </div> </div> <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/>	<input type="checkbox"/>
		Location <input type="checkbox"/> Next to indicator <input type="checkbox"/> Somewhere else on DuT due to space constrains		
83	LED indicator states	INIT → Off	<input type="checkbox"/>	<input type="checkbox"/>
84		PRE-OPERATIONAL → Blinking	<input type="checkbox"/>	<input type="checkbox"/>
85		SAFE-OPERATIONAL → Single Flash	<input type="checkbox"/>	<input type="checkbox"/>
86		OPERATIONAL → On	<input type="checkbox"/>	<input type="checkbox"/>
87		BOOTSTRAP → Flickering or Off <input type="checkbox"/> skipped (Bootstrap not supported)	<input type="checkbox"/>	<input type="checkbox"/>

4.2.2 RUN display indicator			passed	failed	
One of the allowed terms (right column) shall be displayed in the specific state (left column). All terms are not case sensitive.					
<input checked="" type="checkbox"/>	SKIP tests 88-92 if DuT does not use a display as RUN indicator				
88	Display indicator states (encircle used term)	INIT	"In"; "Init"; "1"	<input type="checkbox"/>	<input type="checkbox"/>
89		PRE-OPERATIONAL	"Po"; "PrOp"; "PreOp"; "Pre-Op"; "PreOperational"; "Pre-Operational"; "2"	<input type="checkbox"/>	<input type="checkbox"/>
90		SAFE-OPERATIONAL	"So"; "SfOp"; "SafeOP"; "Safe-Op"; "SafeOperational"; "Safe-Operational"; "4"	<input type="checkbox"/>	<input type="checkbox"/>
91		OPERATIONAL	"Op"; "Operational"; "8"	<input type="checkbox"/>	<input type="checkbox"/>
92		BOOTSTRAP <input type="checkbox"/> skipped (Bootstrap not supported)	"Bo"; "Boot"; "Bootstrap"; "3"	<input type="checkbox"/>	<input type="checkbox"/>

4.2.3 ERROR LED / ERROR indication functionality of STATUS indicator			passed	failed																					
	SKIP tests 93-101 if DuT not uses a LED as ERROR indicator																								
93	LED indicator	Red Color	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
94		Well visible located	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
95		Well visible without removing parts	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
96		Easily seen in normal lighting	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
97		LED obviously allocated to EtherCAT	<input type="checkbox"/> yes	<input type="checkbox"/> no																					
<input type="checkbox"/>	SKIP tests 98-97 if RUN and ERROR indicator combined to STATUS indicator																								
98	LED labeling	<input type="checkbox"/> Correct labeling (no case sensitivity): <table style="margin-left: 20px;"> <tr> <td><input type="checkbox"/> NETWORK</td> <td> </td> <td><input type="checkbox"/> ERROR</td> </tr> <tr> <td><input type="checkbox"/> NET</td> <td>[ + ]</td> <td><input type="checkbox"/> ERR</td> </tr> <tr> <td><input type="checkbox"/> ETHERCAT</td> <td></td> <td><input type="checkbox"/> ER</td> </tr> <tr> <td><input type="checkbox"/> ECAT</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> ECT</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> EC</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> (none)</td> <td></td> <td></td> </tr> </table> <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/> NETWORK		<input type="checkbox"/> ERROR	<input type="checkbox"/> NET	[ + ]	<input type="checkbox"/> ERR	<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> ER	<input type="checkbox"/> ECAT			<input type="checkbox"/> ECT			<input type="checkbox"/> EC			<input type="checkbox"/> (none)			<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/> NETWORK			<input type="checkbox"/> ERROR																						
<input type="checkbox"/> NET	[ + ]	<input type="checkbox"/> ERR																							
<input type="checkbox"/> ETHERCAT		<input type="checkbox"/> ER																							
<input type="checkbox"/> ECAT																									
<input type="checkbox"/> ECT																									
<input type="checkbox"/> EC																									
<input type="checkbox"/> (none)																									
	Location	<input type="checkbox"/> Next to indicator <input type="checkbox"/> Somewhere else on DuT due to space constrains																							
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, test "TR_ErrInd_NoErr"																							
99	LED indicator states	No error → Off	<input type="checkbox"/>	<input type="checkbox"/>																					
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, one out of the following tests: <input type="checkbox"/> TR_ErrInd_InvConf (MbxOut SM) <input type="checkbox"/> TR_ErrInd_InvConf (MbxIn SM) <input type="checkbox"/> TR_ErrInd_InvConf (Output SM) <input type="checkbox"/> TR_ErrInd_InvConf (Input SM)																							
100	LED indicator states	Invalid configuration → Blinking wrong SM 0/1 settings	<input type="checkbox"/>	<input type="checkbox"/>																					
<input type="checkbox"/>	SKIP test 101 if DuT only supports DC modes																								
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Assign output PDOs if available <input type="checkbox"/> Use EtherCAT master to set DuT to Op in non-DC mode <input type="checkbox"/> Disconnect cable																							
101	LED indicator states	ECAT watchdog timeout PD communication stopped Passed if one of the following is true: <input type="checkbox"/> Double flash (+ Run LED single flash; SafeOp) Passed in all cases <input type="checkbox"/> Off Passed if DuT has no output PDOs	<input type="checkbox"/>	<input type="checkbox"/>																					

<b>4.2.4 ERROR display indicator</b>				passed	failed
One of the allowed terms (right column) shall be displayed in the specific error state. All terms are not case sensitive. Alternatively a combination of the terms of the "ERROR LED labeling" and error code is allowed.					
<input checked="" type="checkbox"/>	SKIP tests 102-104 if DuT does not use a display as ERROR indicator				
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, test "TR_ErrInd_NoErr"			
102	Display indicator states	No error	(no error)	<input type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, one out of the following tests: <ul style="list-style-type: none"> <li><input type="checkbox"/> TR_ErrInd_InvConf (MbxOut SM)</li> <li><input type="checkbox"/> TR_ErrInd_InvConf (MbxIn SM)</li> <li><input type="checkbox"/> TR_ErrInd_InvConf (Output SM)</li> <li><input type="checkbox"/> TR_ErrInd_InvConf (Input SM)</li> </ul>			
103	Display indicator states (encircle used term) or use comment page for combination of "ERROR LED labeling" and error code	Invalid configuration  wrong SM 0/1 settings	Unique error code which is described within the documentation as "Invalid Configuration"  OR  "invalidConfiguration"; "InvalConfig"; "InvCfg"	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SKIP test 104 if DuT does only support DC modes				
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Assign output PDOs if available <input type="checkbox"/> Use EtherCAT master to set DuT to OP in non-DC mode <input type="checkbox"/> Disconnect cable			
104	Display indicator states (encircle used term) or use comment page for combination of "ERROR LED labeling" and error code	ECAT watchdog timeout  PD communication stopped	Unique error code which is described within the documentation as "ECAT watchdog timeout"  OR  "EcatWdTimeout"; "EcatWd"; "PdoWdTimeout"; "PdWdTimeout"; "PdoWd"; "PdWd"  Also possible if DuT has no output PDOs:  (no error)	<input type="checkbox"/>	<input type="checkbox"/>

4.3 STATUS indicator			passed	failed																												
<input checked="" type="checkbox"/>	SKIP tests 105-107 if RUN and ERROR indicator are not combined to STATUS indicator																															
105	Indicator	LED obviously allocated to EtherCAT	<input type="checkbox"/> yes	<input type="checkbox"/> no																												
106	Labeling	<input type="checkbox"/> Correct labeling (no case sensitivity): <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><input type="checkbox"/> NETWORK</td> <td style="width: 5%; border: none;"> </td> <td style="width: 5%; border: none;"> </td> <td style="width: 50%; border: none;"><input type="checkbox"/> STATUS</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> NET</td> <td style="border: none;"> </td> <td style="border: none;"> </td> <td style="border: none;"><input type="checkbox"/> STAT</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> ETHERCAT</td> <td style="border: none;"> </td> <td style="border: none;"> </td> <td style="border: none;"><input type="checkbox"/> ST</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> ECAT</td> <td style="border: none;"> </td> <td style="border: none;"> </td> <td></td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> ECT</td> <td style="border: none;"> </td> <td style="border: none;"> </td> <td></td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> EC</td> <td style="border: none;"> </td> <td style="border: none;"> </td> <td></td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> (none)</td> <td style="border: none;"> </td> <td style="border: none;"> </td> <td></td> </tr> </table> <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX1, chapter 3.2)	<input type="checkbox"/> NETWORK			<input type="checkbox"/> STATUS	<input type="checkbox"/> NET			<input type="checkbox"/> STAT	<input type="checkbox"/> ETHERCAT			<input type="checkbox"/> ST	<input type="checkbox"/> ECAT				<input type="checkbox"/> ECT				<input type="checkbox"/> EC				<input type="checkbox"/> (none)				<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/> NETWORK			<input type="checkbox"/> STATUS																													
<input type="checkbox"/> NET			<input type="checkbox"/> STAT																													
<input type="checkbox"/> ETHERCAT			<input type="checkbox"/> ST																													
<input type="checkbox"/> ECAT																																
<input type="checkbox"/> ECT																																
<input type="checkbox"/> EC																																
<input type="checkbox"/> (none)																																
		Location <input type="checkbox"/> Next to indicator <input type="checkbox"/> Somewhere else on DuT due to space constrains																														
>>	Instructions	<input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Use test file TF-F000, test "TR_StatusInd_ErrRunPhaseShift" <input type="checkbox"/> Check if red indicator alters with green indicator																														
107	Indicator	RUN state displayed with a 180° phase shift to the ERROR state	<input type="checkbox"/> yes	<input type="checkbox"/> no																												

5. Explicit Device Identification			passed	failed	
<p>When performing instruction "value != 0", each nibble in the value shall be different (e.g. 0x4321 or 0xA7B5) and shall be picked from the complete value range supported.</p> <p>To set Configured Station Alias, write the value into the corresponding EEPROM address and rewrite EEPROM CRC with the correct value, or use a configuration tool supporting EEPROM update (no EEPROM fields other than Configured Station Alias and CRC shall be written).</p> <p>Instructions shall be followed-<b>No</b> steps between.</p> <p>n.a. = not available</p>					
<input checked="" type="checkbox"/>	SKIP 108 if ESI element StationAliasSupported != REGISTER_SUPPORT				
108	ESI elements	ESI element IdentificationAdo = 0x0012	<input type="checkbox"/> yes	<input type="checkbox"/> no	
<input checked="" type="checkbox"/>	SKIP 109 if ESI element StationAliasSupported != PROCESSDATA_SUPPORT				
109	ESI elements	ESI element IdentificationAdo = 0x1000	<input type="checkbox"/> yes	<input type="checkbox"/> no	
>>	Instructions	<input type="checkbox"/> If available, set Explicit Device ID-Selector = 0x0000 <input type="checkbox"/> Set Configured Station Alias in EEPROM != 0: 0x <i>DAB6 [56230]dec</i> <input type="checkbox"/> Power cycle DuT			
110	Configured StationAlias	Configured Station Alias can be successfully read from Reg. 0x0012:0x0013	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	
<input checked="" type="checkbox"/>	SKIP 111-134 if Explicit Device ID is not supported (i.e. ESI element IdentificationReg134 = FALSE or n.a., IdentificationAdo = n.a. and StationAliasSupported = NOT_SUPPORTED or n.a.)				
111		ID-Selector is a hardware input device directly implemented on DuT	<input type="checkbox"/> yes	<input type="checkbox"/> no	
112	ID-Selector	ID-Selector implemented as : <input type="checkbox"/> DiP switch <input type="checkbox"/> rotary switch <input type="checkbox"/> menu item on display <input type="checkbox"/> other: Allowed <b>max. value</b> : 0x _ _ _ _	<input type="checkbox"/> yes	<input type="checkbox"/> no	
113		Value range is from 0 to <b>max. value</b> consecutively (without any gaps)	<input type="checkbox"/> yes	<input type="checkbox"/> no	
114	ID-Selector Labeling	Labeling available (printed label on DuT or name on display menu item)	<input type="checkbox"/> yes	<input type="checkbox"/> no	
115		Label obviously allocated to ID-Selector	<input type="checkbox"/> yes	<input type="checkbox"/> no	
116		Correct labeling (no case sensitivity): <input type="checkbox"/> ETHERCAT                        <input type="checkbox"/> ID <input type="checkbox"/> ECAT                                  <input type="checkbox"/> DEVICE ID <input type="checkbox"/> EC                                          <input type="checkbox"/> DEV ID <input type="checkbox"/> (none)                                  <input type="checkbox"/> Only if display control: Unique labeling, meaning described in device documentation Label: _____	<input type="checkbox"/> yes	<input type="checkbox"/> no	
117		Factor and numbering system (hex/dec/..) used to label each switch make clear which values are set	<input type="checkbox"/> yes	<input type="checkbox"/> no	

5.1 IdentificationReg134 (Requesting ID)			passed	failed
<input type="checkbox"/>	SKIP 118-122 if ESI element IdentificationReg134 = FALSE or n.a.			
>>	Instructions	<input type="checkbox"/> Set DuT to Init <input type="checkbox"/> Set ID-Selector = 0x0000 <input type="checkbox"/> Set reg. 0x0120 = 0x0021		
118	ID value = 0x0000	Reg. 0x0130 = 0x21 Reg. 0x0134 = 0x0000	<input type="checkbox"/> ye s	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set ID-Selector to a new <b>value</b> != 0: 0x _ _ _ _		
119	No Request → no change in ID value	Reg. 0x0130 = 0x21 Reg. 0x0134 = 0x0000	<input type="checkbox"/> ye s	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set reg. 0x0120 = 0x0001 <input type="checkbox"/> Set reg. 0x0120 = 0x0021		
120	ID value	Reg. 0x0130 = 0x21 Reg. 0x0134 = <b>value</b>	<input type="checkbox"/> ye s	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set reg. 0x0120 = 0x0001 <input type="checkbox"/> Set ID-Selector to <b>max. value</b> <input type="checkbox"/> Set reg. 0x0120 = 0x0021		
121	Max. ID value	Reg. 0x0130 = 0x21 Reg. 0x0134 = <b>max. value</b>	<input type="checkbox"/> ye s	<input type="checkbox"/> no
<input type="checkbox"/>	SKIP 122 if Legacy Mode is supported (ESI element IdentificationAdo = 0x0012 or StationAliasSupported = REGISTER_SUPPORT)			
>>	Instructions	<input type="checkbox"/> Set Configured Station Alias in EEPROM != 0 and != <b>max. value</b> : 0x _ _ _ _ <input type="checkbox"/> power cycle DuT <input type="checkbox"/> Set DuT to Init <input type="checkbox"/> Set reg. 0x0120 = 0x0021		
122	Simultaneous use of Reg. 0x0134 and Config. Station Alias	Reg. 0x0130 = 0x21 Reg. 0x0134 = <b>max. value</b> Reg. 0x0012:0x0013 = value written to EEPROM	<input type="checkbox"/> ye s	<input type="checkbox"/> no

5.2 IdentificationAdo (Direct ID)			passed	failed
<input type="checkbox"/>	SKIP 123-128 if ESI element IdentificationAdo = n.a.			
123	Ado	Ado: 0x_ _ _ _ _ ESI : IdentificationAdo : Ado		
124		Ado is in range: 0x0012:0x0013, 0x1000 - 0x1003, or 0x0F18 - 0x0F1F	<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/>	SKIP 125-128 if Legacy Mode is supported (ESI element IdentificationAdo == 0x0012 or StationAliasSupported = REGISTER_SUPPORT)			
>>	Instructions	<input type="checkbox"/> Set DuT to Init <input type="checkbox"/> Set ID-Selector = 0x0000		
125	ID value	ID value in Ado = 0x0000	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set ID-Selector to new <b>value</b> != 0: 0x_ _ _ _ _		
126	New ID value	ID value in Ado = <b>value</b>	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set ID-Selector to <b>max. value</b>		
127	Max. ID value	ID value in Ado = <b>max. value</b>	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Set Configured Station Alias in EEPROM != 0: 0x_ _ _ _ _ <input type="checkbox"/> Power cycle DuT		
128	Simultaneous use of IdentificationAdo and Config. Station Alias	ID value in Ado = <b>max. value</b> Reg. 0x0012:0x0013 = value written to EEPROM	<input type="checkbox"/> yes	<input type="checkbox"/> no

5.3 Legacy Mode (IdentificationAdo = 0x0012)			passed	failed
<input type="checkbox"/>	SKIP 129-134 if Legacy Mode is not supported (ESI element IdentificationAdo != 0x0012 and StationAliasSupported != REGISTER_SUPPORT)			
>>	Instructions	<input type="checkbox"/> Set Configured Station Alias in EEPROM != 0: 0x _ _ _ _ <input type="checkbox"/> Set ID-Selector to <b>value</b> != 0 and != Configured Station Alias <input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Set DuT to PreOP		
129	Race condition procedure started	<input type="checkbox"/> Reg. 0x0012:0x0013 == <b>value</b> of ID Selector <input type="checkbox"/> Configured Station Alias in EEPROM = 0x0000	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Set DuT to SafeOP		
130	Error detection	<input type="checkbox"/> Reg. 0x0130 = 0x12 <input type="checkbox"/> Reg. 0x0134 = 0x61	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Set DuT to Init <input type="checkbox"/> Set DuT to SafeOP		
131	ID value	<input type="checkbox"/> DuT goes to SafeOP <input type="checkbox"/> Reg. 0x0012:0x013 = <b>value</b> of ID-Selector <input type="checkbox"/> Configured Station Alias in EEPROM = 0x0000	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Do NOT power cycle DuT <input type="checkbox"/> Set ID Selector = <b>new value</b> , != 0 and != current value: 0x _ _ _ _		
132	No Reload → no change of ID value	Reg. 0x0012:0x0013 has not changed	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	a) If Reload Object 0x10E0 is supported <input type="checkbox"/> Reg. 0x0120 = 0x12 (set to PreOp) <input type="checkbox"/> Wait until Reg. 0x0130 == 0x02 (confirmed) <input type="checkbox"/> Object 0x10E0 SI 3 = 0  b) else <input type="checkbox"/> power cycle		
133	ID value	Reg. 0x0012:0x0013 = <b>new value</b> of ID Selector	<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions	<input type="checkbox"/> Set ID-Selector = 0x0000 <input type="checkbox"/> Set Configured Station Alias in EEPROM != 0: 0x _ _ _ _ <input type="checkbox"/> Power cycle DuT <input type="checkbox"/> Set DuT to OP <input type="checkbox"/> Set ID-Selector != 0: 0x _ _ _ _		
134	No Error Detection in OP	Device stays in OP, Reg. 0x0012:0x0013 does not change	<input type="checkbox"/> yes	<input type="checkbox"/> no


5.4 Extraneous selectors		passed	failed
Check if Explicit Device Identification is implemented without corresponding proper indication in ESI and by labeling.			
<input type="checkbox"/>	SKIP 135 if Explicit Device ID is supported (i.e. ESI element IdentificationReg134 = TRUE or IdentificationAdo = REGISTER_SUPPORT or PROCESSDATA_SUPPORT or StationAliasSupported available)		
	<p>Instructions</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> For each hardware input device (dip-switch, rotary switch) available on DuT and which is not used for Explicit Device Identification nor clearly assigned to non-EtherCAT functionalities, set selector value != 0</li> <li><input checked="" type="checkbox"/> Set Configured Station Alias in EEPROM = 0x0000</li> <li><input checked="" type="checkbox"/> Power cycle DuT</li> <li><input checked="" type="checkbox"/> Set DuT to PreOp</li> <li><input checked="" type="checkbox"/> Set reg. 0x0120 = 0x0022</li> </ul>		
135	<p>Reg. 0x0130 bit 5 = 0</p> <p>Reg. 0x0134 = 0x0000</p> <p>Reg. 0x0012:0x0013 = 0x0000</p> <p>Reg. 0x1000 = 0x0000</p> <p><input type="checkbox"/> Not tested if 0x1000 is protected by a SyncManager</p>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no

6. Distributed Clocks (DC)			passed	failed
Run DuT in DC mode to perform each DC test [N2]				
<input checked="" type="checkbox"/>	SKIP tests 136-140 if Distributed Clocks not supported (no ESI element EtherCATInfo : Descriptions : Devices : Device : DC : OpMode : AssignActivate available with value different from #x0) or Device Emulation is activated (Reg 0x0140.B = true)			
>>	Instructions	<input type="checkbox"/> Use master to set DuT to OP in DC mode <input type="checkbox"/> Save ENI file [N3] <input type="checkbox"/> Set register 0x0980 to 0x0000 manually		
136	DuT returns to ErrSafeOp with AL Status Code = 0x2C (or 0x1A) when DCs are disabled from master side [N4]		<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/>	SKIP tests 137-138 if test 136 is failed			
>>	Instructions	<input type="checkbox"/> Keep state reg. 0x130 = 0x14 (ErrSafeOp) <input type="checkbox"/> Set reg. 0x120 = 0x14 (ErrAck)		
137	DuT returns to SafeOp (reg. 0x130 = 0x04) with AL Status Code = 0x00		<input type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/>	SKIP test 138 if test 137 is failed			
>>	Instructions	<input type="checkbox"/> Keep state reg. 0x130 = 0x04 (SafeOp) <input type="checkbox"/> Set reg. 0x120 = 0x08 (Op)		
138	DuT returns to ErrSafeOp (reg. 0x130 = 0x14) with AL Status Code = 0x2d (0x1a) shortly before SafeopToOpTimeout exceeds		<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	If DuT supports dynamic cycle time (CoE object 0x1C3x SI 4 bit 14 = 1), then <input type="checkbox"/> Set DuT to Op with any cycle time <input type="checkbox"/> Set object 0x1C3x SI 8 to "1" <input type="checkbox"/> Read 0x1C3x:05 (= minimum cycle time in ns) <input type="checkbox"/> Reset object 0x1C3x SI 8 to "0"  else <input type="checkbox"/> Set DuT to Op with any cycle time <input type="checkbox"/> Read 0x1C3x:05 (= minimum cycle time in ns)			
139	DuT can be run to OP with minimum cycle time (repeat test 3 times by restarting network/master) Minimum cycle time: _____ Value from: <input type="checkbox"/> 0x1C32:05 <input type="checkbox"/> dynamic <input type="checkbox"/> 0x1C33:05 <input type="checkbox"/> dynamic <input type="checkbox"/> Documentation <input type="checkbox"/> Other: _____		<input type="checkbox"/> yes	<input type="checkbox"/> no
140	DuT in process data communication when set to OP [N5] determined by: _____ <input type="checkbox"/> DuT does not support process data		<input type="checkbox"/> yes	<input type="checkbox"/> no
>>	<input type="checkbox"/> Save configuration as [Test number]_DC.xml and configuration tool specific file format			

7. Miscellaneous			passed	failed
141	Device Emulation Reg 0x0140.08	<input checked="" type="checkbox"/> On (1) <input type="checkbox"/> Off (0) On: failed if DuT supports mailbox communication (complex device)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SKIP test 142-143 if DuT only supports DC modes			
142	DuT in process data communication when set to OP with no DCs activated [N5] determined by: <i>Out puts</i> _____ <input type="checkbox"/> DuT does not support process data		<input checked="" type="checkbox"/>	<input type="checkbox"/>
>>	Instructions	<input checked="" type="checkbox"/> Power cycle DuT <input checked="" type="checkbox"/> Set DuT to SafeOp in non-DC mode <input checked="" type="checkbox"/> Disconnect cable		
143	DuT remains in SAFE-OP without any error		<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no

7.1 Miscellaneous (Error Counter)		skipped	passed	failed
>>	Instructions <input checked="" type="checkbox"/> Connect at least one device to each port of DuT <input checked="" type="checkbox"/> Power-up network <input checked="" type="checkbox"/> Set network to Op <input checked="" type="checkbox"/> Skip test <u>only</u> if register(s) not supported by ESC			
144	DuT: PDI Error Counter (reg 0x030D) = 0	<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
145	DuT: all available Invalid Frame Counters < 10 <input checked="" type="checkbox"/> Port 0 (reg 0x0300) <u>0</u> <input checked="" type="checkbox"/> Port 1 (reg 0x0302) <u>0</u> <input type="checkbox"/> port not available <input type="checkbox"/> Port 2 (reg 0x0304) <u>0</u> <input checked="" type="checkbox"/> port not available <input type="checkbox"/> Port 3 (reg 0x0306) <u>0</u> <input checked="" type="checkbox"/> port not available	<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
146	Connected device(s): all available Invalid Frame Counter < 10 <input checked="" type="checkbox"/> Device (reg 0x030y) connected to DuT Port 0 <u>Port 0</u> <input checked="" type="checkbox"/> Device (reg 0x0300) connected to DuT Port 1 <u>Port 1</u> <input type="checkbox"/> DuT port 1 not available <input type="checkbox"/> Device (reg 0x0300) connected to DuT Port 2 <u>Port 2</u> <input checked="" type="checkbox"/> DuT port 2 not available <input type="checkbox"/> Device (reg 0x0300) connected to DuT Port 3 <u>Port 3</u> <input checked="" type="checkbox"/> DuT port 3 not available y = 2/4/6 depends on which OUT port is connected to the DuTs IN port	<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions <input checked="" type="checkbox"/> set register 0x0307: 0x0300 = 0x0 <input checked="" type="checkbox"/> set error counters of all connected devices to = 0x0 <input checked="" type="checkbox"/> wait at least 60 seconds			
147	DuT: all available Invalid Frame Counter = 0 <input checked="" type="checkbox"/> Port 0 (reg 0x0300) = 0 <input checked="" type="checkbox"/> Port 1 (reg 0x0302) = 0 <input type="checkbox"/> port not available <input type="checkbox"/> Port 2 (reg 0x0304) = 0 <input checked="" type="checkbox"/> port not available <input type="checkbox"/> Port 3 (reg 0x0306) = 0 <input checked="" type="checkbox"/> port not available	<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
148	Connected device(s): Invalid Frame Counter = 0 <input checked="" type="checkbox"/> Device (reg 0x030y) connected to DuT Port 0 = 0 <input checked="" type="checkbox"/> Device (reg 0x0300) connected to DuT Port 1 = 0 <input type="checkbox"/> DuT port 1 not available <input type="checkbox"/> Device (reg 0x0300) connected to DuT Port 2 = 0 <input checked="" type="checkbox"/> DuT port 2 not available <input type="checkbox"/> Device (reg 0x0300) connected to DuT Port 3 = 0 <input checked="" type="checkbox"/> DuT port 3 not available y = 2/4/6 depends on which OUT port is connected to the DuTs IN port	<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions <input checked="" type="checkbox"/> Set register 0x0310: 0x0313 = 0x0 <input checked="" type="checkbox"/> Wait at least 60 seconds			
149	Lost Link Counters (reg 0x0310 : 0x0313) = 0	<input type="checkbox"/>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
>>	Instructions If one of the tests 145-149 failed: <input type="checkbox"/> Verified that error counters did not increment due to connected devices or cables (e.g. replace DuT by another device and check errors again). (Test shall be repeated with devices not generating errors).			

8. Profile 5003 Semi Device Profile		passed	failed
Check features specified by ETG 5003 Semiconductor Device Profile			
<input checked="" type="checkbox"/>	SKIP test 150 if slave does not support profile 5003 acc. to ESI, i.e. element ProfileType:ProfileNo OR ChannelInfo:ProfileNo <> 5003		
>>	<input type="checkbox"/> Save related files as [Test number]_CDP_xxxxx.*		
150	DuT passes all tests according to ETG.7000.2 Annex 5003.0001	<input type="checkbox"/> yes	<input type="checkbox"/> no

9. Marking			passed	failed
151	Logo position	Passed if at least one of the following is true: <input checked="" type="checkbox"/> EtherCAT logo on DuT <input type="checkbox"/> EtherCAT logo in documentation <input type="checkbox"/> DuT fulfills test exception for this test (refer to EX2, chapter 3.2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SKIP test 152 if no logo available				
152	Logo	<input checked="" type="checkbox"/> Correct use of one of the following logos (encircle)  <input type="checkbox"/> DuT supports Safety over EtherCAT and one of the following logo is used (encircle)	<input type="checkbox"/> yes	<input type="checkbox"/> no

153	Trademark	<p>Term of trademark within documentation (only allowed literally as written below)</p> <p>Passed if one of the following is true:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> DuT is not a safety device and uses EtherCAT trademark term</li> <li><input type="checkbox"/> DuT is a safety device and uses EtherCAT trademark term and Safety over EtherCAT trademark term</li> <li><input type="checkbox"/> DuT is a safety device and uses combined EtherCAT and Safety over EtherCAT trademark term</li> </ul> <p><b>EtherCAT trademark term:</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> English: "EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany."</li> <li>OR</li> <li><input type="checkbox"/> English: "EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany."</li> <li><input type="checkbox"/> German: „EtherCAT® ist eine eingetragene Marke und patentierte Technologie lizenziert durch die Beckhoff Automation GmbH, Deutschland.“</li> <li><input type="checkbox"/> French: „EtherCAT® est une marque déposée et une technologie brevetée sous licence de Beckhoff Automation GmbH, Allemagne.“</li> <li><input type="checkbox"/> Italian: „EtherCAT® è un marchio registrato, la tecnologia è brevettata ed è concessa in licenza da Beckhoff Automation GmbH, Germania.“</li> <li><input type="checkbox"/> Spanish: „EtherCAT® es una marca registrada y una tecnología patentada, bajo licencia de Beckhoff Automation GmbH, Alemania.“</li> <li><input type="checkbox"/> Japanese: „EtherCAT®は、ドイツ Beckhoff Automation GmbH によりライセンスされた特許取得済み技術であり登録商標です。”</li> <li><input type="checkbox"/> Korean: „EtherCAT® 독일 Beckhoff Automation GmbH 의 허가를 받은 등록 상표이자 특허 기술입니다.“</li> <li><input type="checkbox"/> Chinese: „EtherCAT® 是注册商标和专利技术，由德国倍福自动化有限公司授权。”</li> </ul> <p><b>Safety over EtherCAT trademark term:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> English: "Safety over EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany."</li> <li>OR</li> <li><input type="checkbox"/> English: "Safety over EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany."</li> <li><input type="checkbox"/> German: „Safety over EtherCAT® ist eine eingetragene Marke und patentierte Technologie lizenziert durch die Beckhoff Automation GmbH, Deutschland.“</li> <li><input type="checkbox"/> French: „Safety over EtherCAT® est une marque déposée et une technologie brevetée sous licence de Beckhoff Automation GmbH, Allemagne.“</li> <li><input type="checkbox"/> Italian: „Safety over EtherCAT® è un marchio registrato, la tecnologia è brevettata ed è concessa in licenza da Beckhoff Automation GmbH, Germania.“</li> <li><input type="checkbox"/> Spanish: „Safety over EtherCAT® es una marca registrada y una tecnología patentada, bajo licencia de Beckhoff Automation GmbH, Alemania.“</li> <li><input type="checkbox"/> Japanese: „Safety over EtherCAT®は、ドイツ Beckhoff Automation GmbH によりライセンスされた特許取得済み技術であり登録商標です。”</li> <li><input type="checkbox"/> Korean: „Safety over EtherCAT® 독일 Beckhoff Automation GmbH 의 허가를 받은 등록 상표이자 특허 기술입니다.“</li> <li><input type="checkbox"/> Chinese: „Safety over EtherCAT® 是注册商标和专利技术，由德国倍福自动化有限公司授权。”</li> </ul> <p><b>Combined EtherCAT and Safety over EtherCAT trademark term:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> English: "EtherCAT® and Safety over EtherCAT® are registered trademarks and patented technologies, licensed by Beckhoff Automation GmbH, Germany."</li> <li><input type="checkbox"/> German: "EtherCAT® und Safety over EtherCAT® sind eingetragene Marken und patentierte Technologien lizenziert durch die Beckhoff Automation GmbH, Deutschland."</li> <li><input type="checkbox"/> French: « EtherCAT® et Safety over EtherCAT® sont des marques déposées et des technologies brevetées sous licence de Beckhoff Automation GmbH, Allemagne ».</li> <li><input type="checkbox"/> Italian: "EtherCAT® e SafetyoverEtherCAT® sono marchi registrati e tecnologie brevettate, concesse in licenza da Beckhoff Automation GmbH, Germania."</li> <li><input type="checkbox"/> Spanish: EtherCAT® y Safety over EtherCAT® son marcas registradas y tecnologías patentadas, bajo licencia de Beckhoff Automation GmbH, Alemania.</li> </ul>	<p><input checked="" type="checkbox"/> yes</p> <p><input type="checkbox"/> no</p>
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	<input type="checkbox"/> <b>Japanese:</b> "EtherCAT® および Safety over EtherCAT® は登録商標かつ特許取得済みの技術であり、Beckhoff Automation GmbH (ドイツ) の許諾を受けています。" <input type="checkbox"/> <b>Korean:</b> "EtherCAT® 과 EtherCAT®의 안전성은 독일 Beckhoff Automation GmbH 의 허가를 받은 등록 상표이자 특허 기술입니다." <input type="checkbox"/> <b>Chinese:</b> „EtherCAT®与 Safety over EtherCAT®是注册商标和专利技术，由德国倍福自动化有限公司授权。"		
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<b>10. Interoperability</b>			passed	failed
For this test use any EtherCAT Configuration Tool				
>>	Instructions	<input checked="" type="checkbox"/> Connect DuT to the Interoperability network <input checked="" type="checkbox"/> Power cycle DuT and all other connected devices <input checked="" type="checkbox"/> Open a new Configuration Tool/ Master project		
154	All devices can be scanned successfully		<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
155	DuT can be stepped manually to all states supported [N6]		<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
>>	<input checked="" type="checkbox"/> Save configuration as [Test number]_Interop.xml and configuration tool specific file format			

