

Test Case			KEMA Verdict	Short Test Description	Function is Integrated in PIS-10 Stack	Function in User Application	Comments
Documentation							
Doc1	M	A	PASSED			yes	Template can be provided by SET
Doc2	M	A	PASSED	Verify MICS describes the semantics of all non-standard Logical Nodes, Data Objects, Data Attributes and enumerations		yes	Template can be provided by SET
Configuration							
Cnf1	M	A	PASSED	Test if the ICD configuration file conforms to the SCL document type definition or schema (IEC 61850-6)		yes	User to create and conform to model
Cnf2	M	A	PASSED	ICD == MMS datamodel		yes	
Cnf3	M	A	PASSED	Change configuration		yes	Use ICD Designer to extract ICD from CID
Cnf4	M	A	PASSED	Check if the server capabilities in the ICD "services" section do match with the IED capabilities		yes	Manually to be added to configuration
Cnf5	M	A	PASSED	For fixed control model verify the ICD correctly initializes the ctrlModel values for all controllable objects		yes	User to create and conform to model
Modelling							
Mdl1	M	A	PASSED	Verify presence of mandatory objects for each LN		yes	ICD Designer has auto-error checker
Mdl2	M	A	PASSED	Verify presence of conditional presence true objects for each LN		yes	User to define
Mdl3	M	A	PASSED	Verify non-presence of conditional presence false objects.		yes	User to define
Mdl4	M	A	PASSED	SCSM name length and object expansion		yes	User to define
Mdl5	M	A	PASSED	SCSM organisation of functional components		yes	User to define
Mdl6	M	A	PASSED	SCSM concerning naming of control blocks and logs		yes	User to define
Mdl7	M	A	PASSED	Verify data type of all objects for each LN.		yes	User to define
Mdl8	M	A	PASSED	Verify data attribute values from the device are in specified range (this is a continuous effort during the whole conformance test)		yes	User to define
Mdl9	M	A	PASSED	Data model extensions should be implemented according to the extension rules in IEC 61850-7-4 Annex A.		yes	User to define
Mdl10	M	A	PASSED	Check if the order of the data attributes within the Data Object types match with IEC 61850-7-3		yes	User to define
Mdl11	M	A	PASSED	Check if the order of the data objects within the Logical Node types match with IEC 61850-7-4		yes	User to define
1: Basic							
Ass1	M	A	PASSED	Associate and release a TPAA association	✓ Yes		
Ass2	M	A	PASSED	Associate and client-abort TPAA association	✓ Yes		
Ass3	M	A	PASSED	Associate with maximum number of clients simultaneously	✓ Yes		
AssN2	M	A	PASSED	Incorrect association parameters	✓ Yes		
AssN3	M	A	PASSED	Set up maximum+1 associations, last associate is refused	✓ Yes		
AssN4	M	A	PASSED	Disconnect the communication interface, the DUT should detect link lost within a specified period	✓ Yes		
AssN5	M	A	PASSED	Interrupt and restore the power supply	✓ Yes		
Srv1	M	A	PASSED	GetServerDirectory(LOGICAL-DEVICE)	✓ Yes		
Srv2	M	A	PASSED	GetLogicalDeviceDirectory	✓ Yes		
Srv3	M	A	PASSED	GetLogicalNodeDirectory(DATA)	✓ Yes		
Srv4	M	A	PASSED	GetDataDirectory / GetDataDefinition / GetDataValues	✓ Yes		
Srv5	M	A	PASSED	GetDataValues request with the maximum number of data values	✓ Yes		
Srv6	C	A	PASSED	SetDataValues of writable attributes	✓ Yes		
Srv7	C	A	PASSED	SetDataValues request with the maximum number of data values	✓ Yes		
Srv8	C	A	PASSED	Request GetAllDataValues for each functional constraint	✓ Yes		
SrvN1abcd	M	A	PASSED	a: - GetLogicalDeviceDirectory with wrong parameters b: - GetLogicalDeviceDirectory with wrong parameters c: - GetAllDataValues with wrong parameters d: - GetDataValues with wrong parameter	✓ Yes		
SrvN1e	C	A	PASSED	- SetDataValues with wrong parameter	✓ Yes		
SrvN3	C	A	PASSED	SetDataValues with mismatching data type	✓ Yes		
SrvN4	M	A	PASSED	SetDataValues for read-only data values	✓ Yes		
2: Dataset sel							
Dset1	M	A	PASSED	GetLogicalNodeDirectory(DATA-SET) followed by GetDataSetValues and GetDataSetDirectory	✓ Yes		
Dset10a	M	A	PASSED	Compare GetDataSetValues with GetDataValues	✓ Yes		
DsetN1ae	M	A	PASSED	a = GetDataSetValues response- e = GetDataSetDirectory response-	✓ Yes		
5: Unbuf.Reporting							
Rp1	M	A	PASSED	GetLogicalNodeDirectory(URCB) and GetURCBValues	✓ Yes		
Rp2	M	A	PASSED	Optional fields	✓ Yes		
Rp3	M	A	PASSED	Trigger conditions	✓ Yes		
Rp4	M	A	PASSED	General Interrogation	✓ Yes		
Rp7	M	A	PASSED	Buffering events in one report	✓ Yes		
Rp8	C	A	PASSED	Verify the DUT can send reports with data objects	✓ Yes		
Rp9	C	A	PASSED	Verify the DUT can send reports with data attributes	✓ Yes		
Rp10	M	A	PASSED	Verify that all buffered events shall be sent before integrity reports can be sent (IEC 61850-7-2 clause 14.2.3.2.3.3)	✓ Yes		
RpN1	M	A	PASSED	GetURCBValues with wrong parameters	✓ Yes		
RpN2	M	A	PASSED	No triggerconditions	✓ Yes		
RpN3	M	A	PASSED	IntPd=0	✓ Yes		
RpN4	M	A	PASSED	Configure URCB when enabled	✓ Yes		
RpN5	C	A	PASSED	Exclusive use of URCB	✓ Yes		
RpN6	C	A	PASSED	Configure unsupported URCB options	✓ Yes		
6: Buf.Reporting							
Br1	M	A	PASSED	GetLogicalNodeDirectory(BRCB) and GetBRCBValues	✓ Yes		
Br2	M	A	PASSED	Optional fields	✓ Yes		
Br3	M	A	PASSED	Trigger conditions	✓ Yes		
Br4	M	A	PASSED	General Interrogation	✓ Yes		
Br7	M	A	PASSED	Buffering events	✓ Yes		
Br8	M	A	PASSED	Buffering reports on lost association, buffer overflow	✓ Yes		
Br9	M	A	PASSED	Set EntryID	✓ Yes		
Br10	C	A	PASSED	Verify the DUT can send reports with data objects	✓ Yes		
Br11	C	A	PASSED	Verify the DUT can send reports with data attributes	✓ Yes		
Br12	M	A	PASSED	Verify that all buffered events shall be sent before integrity reports can be sent (IEC 61850-7-2 clause 14.2.3.2.3.3)	✓ Yes		
BrN1	M	A	PASSED	GetURCBValues with wrong parameters	✓ Yes		
BrN2	M	A	PASSED	No triggerconditions	✓ Yes		
BrN3	M	A	PASSED	IntPd=0	✓ Yes		
BrN4	M	A	PASSED	Configure BRCB when enabled	✓ Yes		
BrN5	M	A	PASSED	Exclusive use of BRCB	✓ Yes		
BrN6	C	A	PASSED	Configure unsupported BRCB options	✓ Yes		
9ab: GOOSE							
Gop1	C	A	PASSED	GetGoCBValues	✓ Yes		
Gop2	M	A	PASSED	GOOSE slow retransmit	✓ Yes		
Gop3	M	A	PASSED	Initial GOOSE stNum=1, sqNum=1	✓ Yes		
Gop4	M	A	PASSED	GOOSE datachange - fast retransmit	✓ Yes		
Gop5	C	A	PASSED	Test mode / Test flag	✓ Yes		
Gop6	C	A	PASSED	Disable a GoCB	✓ Yes		
Gop7	M	A	PASSED	ConfRev not changed after restart	✓ Yes		
Gop10	C	A	PASSED	GOOSE with data objects (attributes are mandatory?)	✓ Yes		
GopN1	C	A	PASSED	When GoEna=TRUE, no attributes of the GoCB control block can be set except for GoEna	✓ Yes		

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9b: GOOSE Subscribe							
Gos1	M	A	PASSED	Send single GOOSE message with new data	✓ Yes		
Gos2	M	A	PASSED	Test or NdsCom is set	✓ Yes		
Gos3	M	A	PASSED	sqNum rollover	✓ Yes		
GosN1	M	A	PASSED	Missing GOOSE	✓ Yes		
GosN2	M	A	PASSED	Double GOOSE	✓ Yes		
GosN3	M	A	PASSED	Delayed	✓ Yes		
GosN4	M	A	PASSED	Out-of-order	✓ Yes		
GosN5	M	A	PASSED	No GOOSE	✓ Yes		
GosN6	M	A	PASSED	Invalid GOOSE	✓ Yes		
12a: DOs							
Cti2	C	A	PASSED	Test flag	✓ Yes		
CtiN3	M	A	PASSED	Operate value is the same as the actual value	✓ Yes		Current position of switch to be provided by user application, depends on hardware design
CtiN8	M	A	PASSED	Operate a direct control object twice from 2 clients		yes	User implementation according to hardware design
CtiN11	C	A	PASSED	Status remote - controls are accepted; Status local - controls are rejected		yes	User implementation according to hardware design
DOs1	M	A	PASSED	Correct Operate request		yes	User implementation according to hardware design
DOs3	M	A	PASSED	Client requests Oper resulting in Test not ok	✓ Yes		
12b: SBOs							
Cti2	C	A	PASSED		✓ Yes		
Cti3	M	A	PASSED		✓ Yes		User application to interact with stack internal control state machine according to hardware design via API
CtiN1	M	A	PASSED		✓ Yes		
CtiN2	M	A	PASSED		✓ Yes		
CtiN3	M	A	PASSED		✓ Yes		User application to interact with stack internal control state machine according to hardware design via API
CtiN4	M	A	PASSED			yes	User implementation according to hardware design
CtiN11	C	A	PASSED	Status remote - controls are accepted; Status local - controls are rejected		yes	User implementation according to hardware design
SBOs2	M	A	PASSED		✓ Yes		sboTimeout needs to be defined in the model and it should have a timeout value
12c: DOes							
Cti2	C	A	PASSED	Test flag	✓ Yes		
CtiN3	M	A	PASSED	Operate value is the same as the actual value	✓ Yes		User configuration according according to functionality, executed by stack
CtiN8	M	A	PASSED	Operate a direct control object twice from 2 clients		yes	User implementation according to hardware design
CtiN11	C	A	PASSED	Status remote - controls are accepted; Status local - controls are rejected		yes	User implementation according to hardware design
DOes2	M	A	PASSED	Client requests Oper resulting in Test not ok	✓ Yes		
DOes5	M	A	PASSED	Send a correct Operate request: 1) with value change, 2) no value change, 3) intermediate value change	✓ Yes		User configuration according according to functionality, executed by stack
12d: SBOes							
Cti2	C	A	PASSED	Test flag	✓ Yes		
Cti3	M	A	PASSED	Select all SBO control objects and cancel them in opposite order		yes	User implementation according to hardware design
CtiN1	M	A	PASSED	Operate (without select) a SBO control object	✓ Yes		
CtiN2	M	A	PASSED	Select twice, second select should fail (or resets the select timeout)	✓ Yes		
CtiN3	M	A	PASSED	Operate value is the same as the actual value		yes	User implementation according to hardware design
CtiN4	M	A	PASSED	Select the same control object from 2 different clients		yes	User implementation according to hardware design
CtiN9	M	A	PASSED	Operate with different value then the SelectWithValue	✓ Yes		
CtiN11	C	A	PASSED	Status remote - controls are accepted; Status local - controls are rejected		yes	User implementation according to hardware design
SBOes1	M	A	PASSED	Incorrect Select	✓ Yes		
SBOes2	M	A	PASSED	SelectWithValue then 1) cancel, 2) timeout, 3) operate test not ok	✓ Yes		User configuration according according to functionality, executed by stack
SBOes3	M	A	PASSED	SelectWithValue - correct Operate request: 1) with value change, 2) no value change, 3) intermediate value change	✓ Yes		User configuration according according to functionality, executed by stack
13: Time Sync							
Tm1	M	A	PASSED	Verify the DUT supports the SCSM time synchronisation	✓ Yes		Time synchronization to be linked with time management of system firmware
Tm2	M	A	PASSED	Check report/logging timestamp accuracy matches the documented timestamp quality of the server	✓ Yes		
TmN1	M	A	PASSED	Verify that when time synchronisation communication lost is detected after a specified period	✓ Yes		

M: Mandatory
A: Applicable
C: Conditional
n/a: Not Applicable