

# **IpConv Protocol Stack**

**Conformance Statement**

**IEC 61850  
Client**

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# 1 PICS

## 1.1 Notation

For the following Clause, the following definitions apply:

- m: mandatory support. The item shall be implemented.
- c: conditional support. The item shall be implemented if the stated condition exists.
- o: optional support. The implementation may decide to implement the item.
- x: excluded. The implementation shall not implement this item.
- i: out-of-scope. The implementation of the item is not within the scope of this standard.
- F/S: Functional Standard. Should be applied.
- Base: Shall be applied in any application claiming conformance to this standard.

## 1.2 Profile conformance

### 1.2.1 PICS for A-Profile support

A-Profile shortcut	Profile Description	Client		Server		Value/comment
		F/S		F/S		
A1	Client/server A-Profile	c1	<input checked="" type="checkbox"/>	c1		Refer to 8.2
A2	GOOSE/GSE management A-Profile	c2		c2		Refer to 8.3
A3	GSSE A-Profile	c3		c3		Refer to 8.4
A4	TimeSync A-Profile	c4	<input checked="" type="checkbox"/>	c4		Refer to 8.5
c1	Shall be 'm' if support for any service specified in Table 2 are declared within the ACSI basic conformance statement.					
c2	Shall be 'm' if support for any service specified in Table 8 are declared within the ACSI basic conformance statement.					
c3	Shall be 'm' if support for any service specified in Table 9 are declared within the ACSI basic conformance statement.					
c4	Support for at least one other A-Profile shall be declared (e.g. in A1-A3) in order to claim conformance to IEC 81850-8-1.					

### 1.2.2 PICS for T-Profile support

T-Profile	Profile Description	Client		Server		Value/Comment
		F/S		F/S		
T1	TCP/IP T-Profile	c1	<input checked="" type="checkbox"/>	c1		Refer to 8.2
T2	OSI T-Profile	c2		c2		Refer to 8.2
T3	GOOSE/GSE T-Profile	c3		c3		Refer to 8.3
T4	GSSE T-Profile	c4		c4		Refer to 8.4
T5	TimeSync T-Profile	o	<input checked="" type="checkbox"/>	o		Refer to 8.5
<p>c1 Shall be 'm' if support for A1 is declared. Otherwise, shall be 'i'.</p> <p>c2 Shall be 'o' if support for A1 is declared. Otherwise, shall be 'i'.</p> <p>c3 Shall be 'm' if support for A2 is declared. Otherwise, shall be 'i'.</p> <p>c4 Shall be 'm' if support for A3 is declared. Otherwise shall be 'i'.</p>						

## 2 MMS Conformance

### 2.1 Initiate conformance

#### 2.1.1 InitiateRequest general parameters

InitiateRequest	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
InitiateRequest						
localDetailCalling	m	m		m	m	
proposedMaxServOutstandingCalling	m	m	1 or greater	m	m	1 or greater
proposedMaxServOustandingCalled	m	m	1 or greater	m	m	1 or greater
initRequestDetail	m	m		m	m	
InitiateRequestDetail						
proposedVersionNumber	m	m	Shall be 2.1	m	m	Shall be 2.1
proposedParameterCBB	m	m	See 24.2.2.2.1.1	m	m	See 24.2.2.2.1.1
servicesSupportedCalling	m	m		m	m	
additionalSupportedCalling	c1	x		c1		
additionalCbbSupportedCalling	c1	x		c1		
privilegeClassIdentityCalling	c1	x		c1		
c1 Conditional upon Parameter CBS CSPI — see Table 90.						

#### 2.1.2 InitiateResponse general parameters

InitiateResponse	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
InitiateResponse						
localDetailCalled	m	m		m	m	
negotiatedMaxServOutstandingCalling	m	m	1 or greater	m	m	1 or greater
negotiatedMaxServOustandingCalled	m	rn	1 or greater	m	m	1 or greater
initResponseDetail	m	rn		m	m	
InitiatedResponseDetail						
negotiatedVersionNumber	m	m	Shall be 2.1	m	m	Shall be 2.1
negotiatedParameterCBB	m	m	See 24.2.2.2.1.2	m	m	See 24.2.2.2.1.2
servicesSupportedCalled	m	m	See 2.2	m	m	See 2.2
additionalSupportedCalled	c1	x		c1	x	
additionalCbbSupportedCalled	c1	x		c1	x	
privilegeClassIdentityCalled	c1	x		c1	x	
c1 Conditional upon Parameter CBS CSPI— see Table 90.						

## 2.2 MMS service supported conformance table

MMS service supported CBB	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
status	o	o	☑	o	m	
getNamelist	o	o		o	c1	
identify	o	o		m	m	
rename	o	o		o	0	
read	o	o	☑	o	c2	
write	o	o	☑	o	c3	
getVariableAccessAttributes	o	o		o	c4	
defineNamedVariable	o	o		o	o	
defineScatteredAccess	o	i		o	i	
getScatteredAccessAttributes	o	i		o	i	
deleteVariableAccess	o	o		o	o	
defineNamedVariableList	o	o		o	o	
getNamedVariableListAttributes	o	o		o	c5	
deleteNamedVariableList	o	o		o	c6	
defineNamedType	o	i		o	i	
getNamedTypeAttributes	o	i		o	i	
deleteNamedType	o	i		o	i	
input	o	i		o	i	
output	o	i		o	i	
takeControl	o	i		o	i	
relinquishControl	o	i		o	i	
defineSemaphore	o	i		o	i	
deleteSemaphore	o	i		o	i	
reportPoolSemaphoreStatus	o	i		o	i	
reportSemaphoreStatus	o	i		o	i	
initiateDownloadSequence	o	i		o	i	
downloadSegment	o	i		o	i	
terminateDownloadSequence	o	i		o	i	
initiateUploadSequence	o	i		o	i	
uploadSegment	o	i		o	i	
terminateUploadSequence	o	i		o	i	
requestDomainDownload	o	i		o	i	
requestDomainUpload	o	i		o	i	
loadDomainContent	o	i		o	i	
storeDomainContent	o	i		o	i	
deleteDomain	o	i		o	i	
getDomainAttributes	o	o		o	c14	
createProgramInvocation	o	i		o	i	

MMS service supported CBB	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
deleteProgramInvocation	o	i		o	i	
start	o	i		o	i	
stop	o	i		o	i	
resume	o	i		o	i	
reset	o	i		o	i	
kill	o	i		o	i	
getProgramInvocationAttributes	o	i		o	i	
obtainFile	o	c9		o	c9	
defineEventCondition	o	i		o	i	
deleteEventCondition	o	i		o	i	
getEventConditionAttributes	o	i		o	i	
reportEventConditionStatus	o	i		o	i	
alterEventConditionMonitonnng	o	i		o	i	
triggerEvent	o	i		o	i	
defineEventAction	o	i		o	i	
deleteEventAction	o	i		o	i	
alterEventEnrollment	o	i		o	i	
reportEventEnrollmentStatus	o	i		o	i	
getEventEnrollmentAttributes	o	i		o	i	
acknowledgeEventNotification	o	i		o	i	
getAlarmSummary	o	i		o	i	
getAlarmEnrollmentSummary	o	i		o	i	
readJournal	o	c13		o	c13	
writeJournal	o	o		o	o	
initializeJournal	o	o		o	c12	
reportJournalStatus	o	i		o	i	
createJournal	o	i		o	i	
deleteJournal	o	i		o	i	
fileOpen	o	c8		o	c8	
fileRead	o	c8		o	c8	
fileClose	o	c8		o	c8	
fileRename	o	i		o	i	
fileDelete	o	c9		o	c9	
fileDirectory	o	c11		o	c11	
unsolicitedStatus	o	i		o	i	
informationReport	o	c7	<input checked="" type="checkbox"/>	o	c7	
eventNotification	o	i		o	i	
attachToEventCondition	o	i		o	i	
attachToSemaphore	o	i		o	i	
conclude	m	m	<input checked="" type="checkbox"/>	m	m	

MMS service supported CBB	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
cancel	o	o		o	m	
getDataExchangeAttributes	o	c10		o	c10	
exchangeData	o	c10		o	c10	
defineAccessControllist	o	c10		o	c10	
getAccessControlListAttributes	o	c10		o	c10	
reportAccessControlledObjects	o	c10		o	c10	
deleteAccessControllist	o	c10		o	c10	
alterAccessControl	o	c10		o	c10	
reconfigureProgramInvocation	o	c10		o	c10	
<p>c1 Shall be 'm' if logical device or logical node model support 3 declared in ACSI basic conformance statement.</p> <p>c2 Shall be 'm' if logical node model support 3 declared in ACSI basic conformance statement or if support for the MMS write service is declared.</p> <p>c3 Shall be 'm' if ACSI support for SetDataValues service 3 declared or implied.</p> <p>c4 Shall be 'm' if logical node model support 3 declared m ACSI basic conformance statement.</p> <p>c5 Shall be 'm' if data set support 3 declared in the ACSI basic conformance statement.</p> <p>c6 Shall be 'm' if support for defineNamedVariableList 3 declared.</p> <p>c7 Shall be 'm' if support for ACSI Report or ACSI command termination is declared.</p> <p>c8 Shall be 'm' if support for ACSI GetFile 3 declared.</p> <p>c9 Shall be 'm' if support for ACSI SetFile 3 declared.</p> <p>c10 Shall not be present since MMS minor version 3 declared to be 1.</p> <p>c11 Shall be 'm' if support for ACSI GetFileAttributeValues 3 declared.</p> <p>c12 Shall be 'm' if support for the ACSI log model is declared.</p> <p>c13 Shall be 'm' if support for the ACSI OuerylogByTime or OueryLogAfter is declared.</p> <p>c14 Shall be 'm' if support for the ACSI logical device model is declared.</p>						

## 2.3 MMS Parameter CBB

MMS parameter CBB	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
STR1	o	o	<input checked="" type="checkbox"/>	o	c1	
STR2	o	o		o	o	
NEST	1	1 or greater	<input checked="" type="checkbox"/>	1	c2	
VNAM	o	o	<input checked="" type="checkbox"/>	o	c1	
VADR	o	o		o	o	
VALT	o	o	<input checked="" type="checkbox"/>	o	c1	
bit 5	x			x	x	
TPY	o	o		o	o	
VLIS	o	c1	<input checked="" type="checkbox"/>	o	c3	
bit 8	x	x		x	x	
bit 9	x	x		x	x	
CEI	o	i		o	i	

ACO	o	c4		o	c4	
SEM	o	c4		o	c4	
CSR	o	c4		o	c4	
CSNC	o	c4		o	c4	
CSPLC	o	c4		o	c4	
CSPI	o	c4		o	c4	
<p>c1 Shall be 'm' if ACSI logical node model support declared.</p> <p>c2 Shall be five(5) or greater if ACSI logical node model support 5 declared.</p> <p>c3 Shall be 'm' if ACSI data set, reporting, GOOSE, or logging model support is declared</p> <p>c4 Shall not be present. Receiving implementations shall assume not supported.</p>						

## 2.4 GetNameList conformance

GetNameList	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
ObjectClass	m	m		m	m	
ObjectScope	m	m		m	m	
DomainName	o	o		m	m	
ContinueAfter	o	m		m	m	
Response+						
List Of Identifier	m	m		m	m	
MoreFollows	m	m		m	m	
Response-						
Error Type	m	m		m	m	
<p>NOTE Object class 'vmd' (for meny VMDSpecific in MAIS V1.0) shall not appear. If a request contains this ObjectClass, an MMS Reject shall be issued.</p>						

## 2.5 Variable access conformance

### 2.5.1 Supporting productions

#### 2.5.1.1 AlternateAccessSelection

AlternateAccessSelection	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
accessSelection	o	o		o	m	
component	o	i		o	m	
index	o	i		o	i	
indexRange	o	i		o	i	
allElements	o	i		o	x	
alternateAccess	o	o		o	m	
selectAccess	o	o		o	m	
component	o	o		o	m	
index	o	i		o	i	
indexRange	o	i		o	i	
allElements	o	i		o	x	

#### 2.5.1.2 VariableAccessSpecification

VariableAccessSpecification	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
listOfVariable	o	o	<input checked="" type="checkbox"/>	o	c1	
variableSpecification	o	o	<input checked="" type="checkbox"/>	o	c1	
alternateAccess	o	o	<input checked="" type="checkbox"/>	o	c1	
variablelistName	o	o	<input checked="" type="checkbox"/>	o	c1	

c1 Shall be 'm' if ACSI support for Logical Node Model is declared.  
c2 Shall be 'm' if ACSI support for ACSI DataSets, reporting, or logging is declared.

#### 2.5.1.3 VariableSpecification

VariableSpecification	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
name	o	o	<input checked="" type="checkbox"/>	o	m	
address	o	o		o	i	
variableDescription	o	a		o	i	
scatteredAccessDescription	o	x		o	x	
invalidated	o	x		o	x	

**2.5.1.4 Read**

Read	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
specificationWithResult	o	o	<input checked="" type="checkbox"/>	o	m	
variableAccessSpecification	m	m	<input checked="" type="checkbox"/> See 2.5.1.2	m	m	
Response						
variableAccessSpecification	o	o	<input checked="" type="checkbox"/>	o	m	
listOfAccessResult	m	m	<input checked="" type="checkbox"/>	m	m	

**2.5.1.5 Write**

Write	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
variableAccessSpecification	m	m	<input checked="" type="checkbox"/> See 2.5.1.2	m	m	
listOfData	m	m	<input checked="" type="checkbox"/>	m	m	
Response						
failure	m	m	<input checked="" type="checkbox"/>	m	m	
success	m	m	<input checked="" type="checkbox"/>	m	m	

**2.5.1.6 InformationReport**

InformationReport	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
variableAccessSpecification	m	m	<input checked="" type="checkbox"/> See 2.5.1.2	m	m	
listOfAccessResult	m	m	<input checked="" type="checkbox"/>	m	m	

**2.5.1.7 GetVariableAccessAttributes**

GetVariableAccessAttributes	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
name	o	o		m	m	
address	o	o		m	x	
Response						
mmsDeletable	m	m		m	m	
address	o	x		o	x	
typeSpecification	m	m		m	m	

### 2.5.1.8 DefineNamedVariableList

DefineNamedVariableList	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
variableListName	m	m		m	m	
listOfVariable	m	m		m	m	
variableSpecification	m	m		m	m	
alternateAccess	o	i		o	m	
Response	m	m		m	m	

### 2.5.1.9 GetNamedVariableListAttributes

GetNamedVariableListAttributes	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
ObjectName	m	m		m	m	
Response						
mmsDeletable	m	m		m	m	
listOfVariable	m	m		m	m	
variableSpecification	m	m		m	m	
alternateAccess	o	m		o	i	

### 2.5.1.10 DeleteNamedVariableList

DeleteNamedVariableList	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
Scope	m	m		m	m	
listOfVariableListName	m	m		m	m	
domainName	o	m		o	m	
Response						
numberMatched	m	m		m	m	
numberDeleted	m	m		m	m	
DeleteNamedVariableList-Error	m	m		m	m	

## 2.5.2 Journal management services

### 2.5.2.1 ReadJournal

ReadJournal	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
invokeID	m	m		m	m	
JournalName	m	m		m	m	
rangeStartSpecification	o	m		o	m	
startingTime	o	c1		o	m	
EntrytoStartAfter	o	o		o	m	
rangeStopSpecification	o	m		o	m	
endingTime	o	c2		o	m	
numberOfEntries	o	o		o	m	
EntryToStartAfter	o	c2		o	m	
TimeSpecification	m	m		m	m	
EntrySpecification	m	m		m	m	
Response						
invokeID	m	m		m	m	
listOfJournalEntry	m	m		m	m	
entryIdentifier	o	m		m	m	
originatingApplication	m	m		m	m	
entryContent	m	m		m	m	
moreFollows	m	m		o	m	
c1 At least one shall be present.						
c2 At least one shall be present.						

### 2.5.2.2 JournalEntry conformance statement

Ref	Parameter	Client-CR			Server-CR		
		Base	F/S	Value/range	Base	F/S	Value/range
1	occurrenceTime	m	m		m	m	
2	additionalDetail	x	x		x	x	
3	entryForm	m	m		m	m	
4	data	o	m		o	c1	
5	event	o	m		o	o	
8	currentState	o	m		o	c2	
7	listofVariable	o	m		o	c3	
8	variableTag	o	m		o	c4	
9	valueSpecification	o	m		o	c4	
10	annotation	o	m		o	c1	

- c1 Either data or annotation shall be present.  
 c2 If event is present, then m.  
 c3 If data is present, then m.  
 c4 If listOfVariable present, then m.

### 2.5.2.3 InitializeJournal

InitializeJournal	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
journalName	m	m		m	m	
limitSpecification	m	m		m	m	
limitingTime	m	m		m	m	
limitingEntry	o	o		o	m	
Response+						
entriesDeleted	m	m		m	m	

## 2.5.3 File management services

### 2.5.3.1 FileDirectory

FileDirectory	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
filespecification	o	o		m	m	
continueAfter	o	o		m	m	
Response+						
listOfDirectoryEntry	m	m		m	m	
MoreFollows	m	m		m	m	

### 2.5.3.2 FileOpen

FileOpen	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
filename	m	m		m	m	
initialPosition	o	o		m	m	
Response+						
frsmID	m	m		m	m	
fileAttributes	m	m		m	m	

### 2.5.3.3 FileRead

FileRead	Client-CR	Server-CR
----------	-----------	-----------

	Base	F/S	Value/range	Base	F/S	Value/range
Request						
frsmID	m	m		m	m	
Response+						
fileData	m	m		m	m	
moreFollows	m	m		m	m	

### 2.5.3.4 FileClose

FileClose	Client-CR			Server-CR		
	Base	F/S	Value/range	Base	F/S	Value/range
Request						
frsmID	m	m		m	m	
Response+	m	m		m	m	

## 2.6 PICS Statement

This Subclause describes the Protocol Implementation Conformation Statement Proforma (PICS). Every implementor shall complete the entire PICS. Refer to IEC 61850-7-2 ACSI basic conformance statement. The PICS, in the following Subclauses, shall also be completed.

## 2.7 Logical device

The following PICs represents the conformance requirements if support for the logical device model is declared within the ACSI basic conformance statement.

## 2.8 GOOSE conformance statement

	Subscriber	Publisher	Value / comment
GOOSE Services	c1	c1	
SendGOOSEMessage	m	m	
GetGoReference	o	c3	
GetGOOSEElementNumber	o	c4	
GetGoCBValues	o	o	
SetGoCBValues	o	o	
GSENotSupported	c2	c5	
GOOSE Control Block (GoCB)	o	o	

c1 Shall be 'm' if support is declared within ACSI basic conformance statement.  
c2 Shall be 'm' if ACSI basic conformance support for either GetGoReference or GetGOOSEElementNumber is declared.  
c3 Shall be 'm' if support for ACSI basic conformance of GetGoReference is declared.  
c4 Shall be 'm' if support for ACSI basic conformance of GetGOOSEElementNumber.  
c5 Shall be 'm' if no support for ACSI basic conformance of GetGOOSEElementNumber is declared.

## 2.9 GSSE conformance statement

	Subscriber	Publisher	Value / comment
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GSSE Services	c1	c1	
SendGSSEEMessage	m	m	
GetGsReference	o	c3	
GetGSSEDataOffset	o	c4	
GetGsCBValues	o	o	
SetGsCBValues	c	o	
GSENotSupported	c2	c5	
GSSE Control Block (GsCB)	o	o	

c1 Shall be 'm' if support is declared within ACSI basic conformance statement.

c2 Shall be 'm' if ACSI basic conformance support for either GetGsReference or GetGSSEDataOffset is declared.

c3 Shall be 'm' if support for ACSI basic conformance of GetGsReference is declared.

c4 Shall be 'm' if support for ACSI basic conformance of GetGSSEDataOffset.

c5 Shall be 'm' if no support for ACSI basic conformance of GetGSSEDataOffset is declared.

### 3 SCL Conformance

	SCL Conformance	Client-CR			Server-CR		
		Base	F/S	Value/range	Base	F/S	Value/range
SCL.1	SCL file for implementation available (offline)				m	m	
SCL.2	SCL file available from implementation (online)	o	o		o	O	
SCL.3	SCL implementation reconfiguration supported online	o	o		o	o	

## 4 ACSI

### 4.1 ACSI basic conformance statement

		Client/ subscriber	Server/ publisher	Value/ comments
<b>Client-server roles</b>				
B11	<b>Server</b> side (of TWO-PARTY- APPLICATION-ASSOCIATION)	–	c1	
B12	<b>Client</b> side of (TWO-PARTY- APPLICATION-ASSOCIATION)	c1	–	<input checked="" type="checkbox"/>
<b>SCSMs supported</b>				
B21	<b>SCSM</b> : IEC 61850-8-1 used			<input checked="" type="checkbox"/>
B22	<b>SCSM</b> : IEC 61850-9-1 used			
B23	<b>SCSM</b> : IEC 61850-9-2 used			
B24	<b>SCSM</b> : other			
<b>Generic substation event model (GSE)</b>				
B31	<b>Publisher</b> side	–	o	
B32	<b>Subscriber</b> side	o	–	
<b>Transmission of sampled value model (SVC)</b>				
B41	<b>Publisher</b> side	–	o	
B42	<b>Subscriber</b> side	o	–	
<p>c1 – shall be 'm' if support for <b>LOGICAL-DEVICE</b> model has been declared. o – Optional  m – Mandatory</p>				

## 4.2 ACSI models conformance statement

		Client/ subscriber	Server/ publisher	Value/ comments
If <b>Server</b> side (B11) supported				
M1	<b>Logical device</b>	c2	c2	<input checked="" type="checkbox"/>
M2	<b>Logical node</b>	c3	c3	<input checked="" type="checkbox"/>
M3	<b>Data</b>	c4	c4	<input checked="" type="checkbox"/>
M4	<b>Data set</b>	c5	c5	<input checked="" type="checkbox"/>
M5	<b>Substitution</b>	o	o	
M6	<b>Setting group control</b>	o	o	
	<b>Reporting</b>			<input checked="" type="checkbox"/>
M7	<b>Buffered report control</b>	o	o	<input checked="" type="checkbox"/>
M7-1	sequence-number			<input checked="" type="checkbox"/>
M7-2	report-time-stamp			<input checked="" type="checkbox"/>
M7-3	reason-for-inclusion			<input checked="" type="checkbox"/>
M7-4	data-set-name			<input checked="" type="checkbox"/>
M7-5	data-reference			<input checked="" type="checkbox"/>
M7-6	buffer-overflow			<input checked="" type="checkbox"/>
M7-7	entryID			<input checked="" type="checkbox"/>
M7-8	BufTm			<input checked="" type="checkbox"/>
M7-9	IntgPd			<input checked="" type="checkbox"/>
M7-10	GI			<input checked="" type="checkbox"/>
M8	<b>Unbuffered report control</b>	o	o	<input checked="" type="checkbox"/>
M8-1	sequence-number			<input checked="" type="checkbox"/>
M8-2	report-time-stamp			<input checked="" type="checkbox"/>
M8-3	reason-for-inclusion			<input checked="" type="checkbox"/>
M8-4	data-set-name			<input checked="" type="checkbox"/>
M8-5	data-reference			<input checked="" type="checkbox"/>
M8-6	BufTm			<input checked="" type="checkbox"/>
M8-7	IntgPd			<input checked="" type="checkbox"/>
M8-8	GI			<input checked="" type="checkbox"/>
	<b>Logging</b>	o	o	
M9	<b>Log control</b>	o	o	
M9-1	IntgPd			
M10	<b>Log</b>	o	o	
M11	<b>Control</b>	m	m	<input checked="" type="checkbox"/>
If <b>GSE</b> (B31/ B32) is supported				
	<b>GOOSE</b>	o	o	
M12-1	entryID			
M12-2	DataRefInc			
M13	<b>GSSE</b>	o	o	

		Client/ subscriber	Server/ publisher	Value/ comments
If <b>SVC</b> (B41/B42) is supported				
M14	Multicast SVC	o	o	
M15	Unicast SVC	o	o	
M16	<b>Time</b>	m	m	<input checked="" type="checkbox"/> Time source with required accuracy shall be available
M17	<b>File Transfer</b>	o	o	
<p>c2 – shall be 'm' if support for <b>LOGICAL-NODE</b> model has been declared.</p> <p>c3 – shall be 'm' if support for <b>DATA</b> model has been declared.</p> <p>c4 – shall be 'm' if support for <b>DATA-SET</b>, Substitution, Report, Log Control, or Time model has been declared.</p> <p>c5 – shall be 'm' if support for Report, GSE, or SV models has been declared.</p> <p>m – Mandatory</p>				

### 4.3 ACSI service conformance statement

	Services	AA: TP/MC	Client/ subscriber	Server/ publisher	Comments
<b>Server (Clause 6)</b>					
S1	ServerDirectory	TP		m	

<b>Application association (Clause 7)</b>					
S2	Associate		m	m	<input checked="" type="checkbox"/>
S3	Abort		m	m	<input checked="" type="checkbox"/>
S4	Release		m	m	<input checked="" type="checkbox"/>

<b>Logical device (Clause 8)</b>					
S5	LogicalDeviceDirectory	TP	m	m	

<b>Logical node (Clause 9)</b>					
S6	LogicalNodeDirectory	TP	m	m	
S7	GetDataValues	TP	o	m	

<b>Data (Clause 10)</b>					
S8	GetDataValues	TP	m	m	<input checked="" type="checkbox"/>
S9	SetDataValues	TP	o	o	<input checked="" type="checkbox"/>
S10	GetDataDirectory	TP	o	m	
S11	GetDataDefinition	TP	o	m	

	Services	AA: TP/MC	Client/ subscriber	Server/ publishe	Comments
<b>Data set (Clause 11)</b>					
S12	GetDataSetValues	TP	o	m	
S13	SetDataSetValues	TP	o	o	
S14	CreateDataSet	TP	o	o	
S15	DeleteDataSet	TP	o	o	

S16	GetDataSetDirectory	TP	o	o	
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**Substitution (Clause 12)**

S17	SetDataValues	TP	m	m	
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**Setting group control (Clause 13)**

S18	SelectActiveSG	TP	o	o	
S19	SelectEditSG	TP	o	o	
S20	SetSGValues	TP	o	o	
S21	ConfirmEditSGValues	TP	o	o	
S22	GetSGValues	TP	o	o	
S23	GetSGCBValues	TP	o	o	

**Reporting (Clause 14)**

## Buffered report control block (BRCB)

S24	Report	TP	c6	c6	<input checked="" type="checkbox"/>
S24-1	data-change (dchg)				<input checked="" type="checkbox"/>
S24-2	qchg-change (qchg)				<input checked="" type="checkbox"/>
S24-3	data-update (dupd)				<input checked="" type="checkbox"/>
S25	GetBRCBValues	TP	c6	c6	<input checked="" type="checkbox"/>
S26	SetBRCBValues	TP	c6	c6	<input checked="" type="checkbox"/>

## Unbuffered report control block (URCB)

S27	Report	TP	c6	c6	<input checked="" type="checkbox"/>
S27-1	data-change (dchg)				<input checked="" type="checkbox"/>
S27-2	qchg-change (qchg)				<input checked="" type="checkbox"/>
S27-3	data-update (dupd)				<input checked="" type="checkbox"/>
S28	GetURCBValues	TP	c6	c6	<input checked="" type="checkbox"/>
S29	SetURCBValues	TP	c6	c6	<input checked="" type="checkbox"/>

c6 – shall declare support for at least one (BRCB or URCB).

**Logging (Clause 14)**

## Log control block

S30	GetLCBValues	TP	m	m	
S31	SetLCBValues	TP	o	m	

## Log

S32	QueryLogByTime	TP	c7	m	
S33	QueryLogAfter	TP	c7	m	
S34	GetLogStatusValues	TP	m	m	

c7 – shall declare support for at least one (QueryLogByTime or QueryLogAfter).

	Services	AA: TP/MC	Client/ subscriber	Server/ publisher	Comments
<b>Generic substation event model (GSE) (14.3.5.3.4)</b>					
GOOSE-CONTROL-BLOCK					
S35	SendGOOSEMessage	mc	c8	c8	
S36	GetGoReference	TP	o	c9	
S37	GetGOOSEElementNumber	TP	o	c9	
S38	GetGoCBValues	TP	o	o	
S39	SetGoCBValues	TP	o	o	
GSSE-CONTROL-BLOCK					
S40	SendGSSEMessage	mc	c8	c8	
S41	GetGsReference	TP	o	c9	
S42	GetGSSEElementNumber	TP	o	c9	
S43	GetGsCBValues	TP	o	o	
S44	SetGsCBValues	TP	o	o	
c8 – shall declare support for at least one (SendGOOSEMessage or SendGSSEMessage). c9 – shall declare support if TP association is available.					

<b>Transmission of sampled value model (SVC) (Clause 16)</b>					
Multicast SVC					
S45	SendMSVMessage	mc	c10	c10	
S46	GetMSVCBValues	TP	o	o	
S47	SetMSVCBValues	TP	o	o	
Unicast SVC					
S48	SendUSVMessage	TP	c10	c10	
S49	GetUSVCBValues	TP	o	o	
S50	SetUSVCBValues	TP	o	o	
c10 – shall declare support for at least one (SendMSVMessage or SendUSVMessage).					

<b>Control (17.5.1)</b>					
S51	Select		m	o	<input checked="" type="checkbox"/>
S52	SelectWithValue	TP	m	o	<input checked="" type="checkbox"/>
S53	Cancel	TP	o	o	<input checked="" type="checkbox"/>
S54	Operate	TP	m	m	<input checked="" type="checkbox"/>
S55	Command-Termination	TP	m	o	<input checked="" type="checkbox"/>
S56	TimeActivated-Operate	TP	o	o	

<b>File transfer (Clause 20)</b>					
S57	GetFile	TP	o	m	
S58	SetFile	TP	o	o	
S59	DeleteFile	TP	o	o	
S60	GetFileAttributeValues	TP	o	m	

Services		AA: TP/MC	Client/ subscriber	Server/ publisher	Comments
<b>Time (5.5)</b>					
T1	Time resolution of internal clock			-10 (1ms)	Nearest negative power of 2 in seconds
T2	Time accuracy of internal clock			-11 (+/-0,5ms)	T0
					T1
					T2
					T3
					T4
					T5
T3	Supported TimeStamp resolution			-10 (1ms)	Nearest value of $2^{**n}$ in seconds

## 5 Logical Node conformance statement

Logical Node	Supported
<b>Logical Nodes for management functions LN Group: L</b>	
LN: Physical device information Name: LPHD	
LN: Logical node zero Name: LLN0	
<b>Logical Nodes for protection functions LN Group: P</b>	
LN: Differential Name: PDIF	
LN: Direction comparison Name: PDIR	
LN: Distance Name: PDIS	
LN: Directional overpower Name: PDOP	
LN: Directional underpower Name: PDUP	
LN: Rate of change of frequency Name: PFRC	
LN: Harmonic restraint Name: PHAR	
LN: Ground detector Name: PHIZ	
LN: Instantaneous overcurrent Name: PIOC	
LN: Motor restart inhibition Name: PMRI	
LN: Motor starting time supervision Name: PMSS	
LN: Over power factor Name: POPF	
LN: Phase angle measuring Name: PPAM	
LN: Protection scheme Name: PSCH	
LN: Sensitive directional earthfault Name: PSDE	
LN: Transient earth fault Name: PTEF	
LN: Time overcurrent Name: PTOC	
LN: Over frequency Name: PTOF	
LN: Overvoltage Name: PTOV	
LN: Protection trip conditioning Name: PTRC	
LN: Thermal overload Name: PTTR	
LN: Undercurrent Name: PTUC	
LN: Undervoltage Name: PTUV	
LN: Under power factor Name: PUPF	
LN: Under frequency Name: PTUF	
LN: Voltage controlled time overcurrent Name: PVOC	
LN: Volts per Hz Name: VPH	
LN: Zero speed or underspeed Name: PZSU	
<b>Logical Nodes for protection related functions LN Group: R</b>	
LN: Disturbance recorder function Name: RDRE	
LN: Disturbance recorder channel analogue Name: RADR	
LN: Disturbance recorder channel binary Name: RBDR	
LN: Disturbance record handling Name: RDRS	
LN: Breaker failure Name: RBRF	
LN: Directional element Name: RDIR	
LN: Fault locator Name: RFLO	
LN: Power swing detection/blocking Name: RPSB	
LN: Autoreclosing Name: RREC	
LN: Synchronism-check or synchronising Name: RSYN	

Logical Node	Supported
Logical Nodes for control LN Group: C	
LN: Alarm handling Name: CALH	
LN: Cooling Group Control Name: CCGR	
LN: Interlocking Name: CILO	
LN: Point-on-wave switching Name: CPOW	
LN: Switch controller Name: CSWI	
Logical nodes for generic references LN Group: G	
LN: Generic automatic process control Name: GAPC	
LN: Generic process I/O Name: GGIO	
LN: Generic security application Name: GSAL	
Logical Nodes for interfacing and archiving LN Group: I	
LN: Archiving Name: IARC	
LN: Human machine interface Name: IHMI	
LN: Telecontrol interface Name: ITCI	
LN: Telemonitoring interface Name: ITMI	
Logical Nodes for automatic control LN Group: A	
LN: Neutral current regulator Name: ANCR	
LN: Reactive power control Name: ARCO	
LN: Automatic tap changer controller Name: ATCC	
LN: Voltage control Name: AVCO	
Logical Nodes for metering and measurement LN Group: M	
LN: Differential measurements Name: MDIF	
LN: Harmonics or interharmonics Name: MHAI	
LN: Non phase related harmonics or interharmonics Name: MHAN	
LN: Metering Name: MMTR	
LN: Non phase related Measurement Name: MMXN	
LN: Measurement Name: MMXU	
LN: Sequence & imbalance Name: MSQI	
LN: Metering Statistics Name: MST A	
Logical Nodes for sensors and monitoring LN Group: S	
LN: Monitoring and diagnostics for arcs Name: SARC	
LN: Insulation medium supervision (gas) Name: SIMG	
LN: Insulation medium supervision (liquid) Name: SIML	
LN: Monitoring and diagnostics for partial discharges Name: SPDC	
Logical Nodes for switchgear LN Group: X	
LN: Circuit breaker Name: XCBR	
LN: Circuit switch Name: XSWI	
Logical Nodes for instrument transformers LN Group: T	
LN: Current transformer Name: TCTR	
LN: Voltage transformer Name: TVTR	
Logical Nodes for power transformers LN Group: Y	
LN: Earth fault neutralizer (Petersen coil) Name: YEFN	
LN: Tap changer Name: YLTC	
LN: Power shunt Name: YPSH	
LN: Power transformer Name: YPTR	

Logical Node	Supported
Logical Nodes for Further Power System Equipment LN Group: Z	
LN: Auxiliary network Name: ZAXN	
LN: Battery Name: ZBAT	
LN: Bushing Name: ZBSH	
LN: Power cable Name: ZCAB	
LN: Capacitor bank Name: ZCAP	
LN: Converter Name: ZCON	
LN: Generator Name: ZGEN	
LN: Gas insulated line Name: ZGIL	
LN: Power overhead line Name: ZLIN	
LN: Motor Name: ZMOT	
LN: Reactor Name: ZREA	
LN: Rotating reactive component Name: ZRRC	
LN: Surge arrester Name: ZSAR	
LN: Thyristor controlled frequency converter Name: ZTCF	
LN: Thyristor controlled reactive component Name: ZTCR	

## 6 Common data class conformance statement

### 6.1 SPS: Single point status

SPS class						
Attribute name	Attribute type	FC	TrgOp	Value/value range	m/o/c	Supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>status</i>						
stVal	BOOLEAN	ST	dchg	FALSE   TRUE	M	<input checked="" type="checkbox"/>
q	Quality	ST	qchg		M	<input checked="" type="checkbox"/>
t	TimeStamp	ST			M	<input checked="" type="checkbox"/>
<i>Substitution</i>						
subEna	BOOLEAN	SV			PICS_SUBST	
subVal	BOOLEAN	SV		TRUE   FALSE	PICS_SUBST	
subQ	Quality	SV			PICS_SUBST	
subID	VISIBLE STRING64	SV			PICS_SUBST	
<i>configuration, description and extension</i>						
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

### 6.2 DPS: Double point status

DPS class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>status</i>						
stVal	CODED ENUM	ST	dchg	intermediate-state   off   on   bad-	m	<input checked="" type="checkbox"/>
q	Quality	ST	qchg		m	<input checked="" type="checkbox"/>
t	TimeStamp	ST			m	<input checked="" type="checkbox"/>
<i>substitution</i>						
subEna	BOOLEAN	SV			PICS_SUBST	
subVal	CODED ENUM	SV		intermediate-state   off   on   bad-	PICS_SUBST	
subQ	Quality	SV			PICS_SUBST	
subID	VISIBLE STRING64	SV			PICS_SUBST	
<i>configuration, description and extension</i>						
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

### 6.3 ACT: Protection activation information

INS class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	M/O/C	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>status</i>						
general	BOOLEAN	ST	dchg		m	<input checked="" type="checkbox"/>
phsA	BOOLEAN	ST	dchg		o	<input checked="" type="checkbox"/>
phsB	BOOLEAN	ST	dchg		o	<input checked="" type="checkbox"/>
phsC	BOOLEAN	ST	dchg		o	<input checked="" type="checkbox"/>
neut	BOOLEAN	ST	dchg		o	<input checked="" type="checkbox"/>
q	Quality	ST	qchg		m	<input checked="" type="checkbox"/>
t	TimeStamp	ST			m	<input checked="" type="checkbox"/>
<i>configuration, description and extension</i>						
operTm	TimeStamp	CF			o	
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

### 6.4 ACD: Directional protection activation information

INS class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	M/O/C	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>status</i>						
general	BOOLEAN	ST	dchg		m	<input checked="" type="checkbox"/>
dirGeneral	ENUMERATED	ST	dchg	unknown   forward   backward   both	m	
phsA	BOOLEAN	ST	dchg		GC_2 (1)	<input checked="" type="checkbox"/>
dirPhsA	ENUMERATED	ST	dchg	unknown   forward   backward   both	GC_2 (1)	
phsB	BOOLEAN	ST	dchg		GC_2 (2)	<input checked="" type="checkbox"/>
dirPhsB	ENUMERATED	ST	dchg	unknown   forward   backward   both	GC_2 (2)	
phsC	BOOLEAN	ST	dchg		GC_2 (3)	<input checked="" type="checkbox"/>
dirPhsC	ENUMERATED	ST	dchg	unknown   forward   backward   both	GC_2 (3)	
neut	BOOLEAN	ST	dchg		GC_2 (4)	<input checked="" type="checkbox"/>
dirNeut	ENUMERATED	ST	dchg	unknown   forward   backward   both	GC_2 (4)	
q	Quality	ST	qchg		M	<input checked="" type="checkbox"/>
t	TimeStamp	ST			M	<input checked="" type="checkbox"/>
<i>configuration, description and extension</i>						
operTm	TimeStamp	CF			o	
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

## 6.5 INS: Integer status

INS class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	M/O/C	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>status</i>						
stVal	INT32	ST	dchg		m	<input checked="" type="checkbox"/>
q	Quality	ST	qchg		m	<input checked="" type="checkbox"/>
t	TimeStamp	ST			m	<input checked="" type="checkbox"/>
<i>substitution</i>						
subEna	BOOLEAN	SV			PICS_SUBST	
subVal	INT32	SV			PICS_SUBST	
subQ	Quality	SV			PICS_SUBST	
subID	VISIBLE STRING64	SV			PICS_SUBST	
<i>configuration, description and extension</i>						
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

## 6.6 MV: Measured value

MV class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>measured attributes</i>						
instMag	AnalogueValue	MX			o	<input checked="" type="checkbox"/>
mag	AnalogueValue	MX	dchg		m	<input checked="" type="checkbox"/>
range	ENUMERATED	MX	dchg	normal   high   low   high-high   low-	o	
q	Quality	MX	qchg		m	<input checked="" type="checkbox"/>
t	TimeStamp	MX			m	<input checked="" type="checkbox"/>
<i>substitution</i>						
subEna	BOOLEAN	SV			PICS_SUBST	
subMag	AnalogueValue	SV			PICS_SUBST	
subQ	Quality	SV			PICS_SUBST	
subID	VISIBLE STRING64	SV			PICS_SUBST	
<i>configuration, description and extension</i>						
units	Unit	CF		see Annex A	o	
db	INT32U	CF		0 ... 100 000	o	
zeroDb	INT32U	CF		0 ... 100 000	o	
sVC	ScaledValueConfig	CF			AC_SCAV	
rangeC	RangeConfig	CF			GC_CON	
smpRate	INT32U	CF			o	
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

## 6.7 CMV: Complex measured value

MV class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>measured attributes</i>						
instCVal	Vector	MX			o	<input checked="" type="checkbox"/>
cVal	Vector	MX	dchg		m	<input checked="" type="checkbox"/>
range	ENUMERATED	MX	dchg	normal   high   low   high-high   low-	o	
q	Quality	MX	qchg		m	<input checked="" type="checkbox"/>
t	TimeStamp	MX			m	<input checked="" type="checkbox"/>
<i>substitution</i>						
subEna	BOOLEAN	SV			PICS_SUBST	
subCVal	Vector	SV			PICS_SUBST	
subQ	Quality	SV			PICS_SUBST	
subID	VISIBLE STRING64	SV			PICS_SUBST	
<i>configuration, description and extension</i>						
units	Unit	CF		see Annex A	o	
db	INT32U	CF		0 ... 100 000	o	
zeroDb	INT32U	CF		0 ... 100 000	o	
rangeC	RangeConfig	CF			GC_CON	
magSVC	ScaledValueConfig	CF			AC_SCAV	
angSVC	ScaledValueConfig	CF			AC_SCAV	
angRef	ENUMERATED	CF		V   A   other ...	o	
smpRate	INT32U	CF			o	
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

## 6.8 WYE: Phase to ground related measured values of a three phase system

MV class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
Data						
phsA	CMV				GC_1	<input checked="" type="checkbox"/>
phsB	CMV				GC_1	<input checked="" type="checkbox"/>
phsC	CMV				GC_1	<input checked="" type="checkbox"/>
neut	CMV				GC_1	<input checked="" type="checkbox"/>
net	CMV				GC_1	<input checked="" type="checkbox"/>
res	CMV				GC_1	<input checked="" type="checkbox"/>
DataAttribute						
<i>configuration, description and extension</i>						
angRef	ENUMERATED	CF		Va   Vb   Vc   Aa   Ab   Ac   Vab   Vbc   Vca   Vother   Aother	o	
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

## 6.9 DEL: Phase to phase related measured values of a three phase system

MV class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
<b>Data</b>						
phsAB	CMV				GC_1	<input checked="" type="checkbox"/>
phsBC	CMV				GC_1	<input checked="" type="checkbox"/>
phsCA	CMV				GC_1	<input checked="" type="checkbox"/>
<b>DataAttribute</b>						
<i>configuration, description and extension</i>						
angRef	ENUMERATED	CF		Va   Vb   Vc   Aa   Ab   Ac   Vab   Vbc   Vca   Vother   Aother	o	
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

## 6.10 SPC: Controllable single point

SPC class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
<b>DataAttribute</b>						
<i>control and status</i>						
ctlVal	BOOLEAN	CO		off (FALSE)   on (TRUE)	AC_CO_M	<input checked="" type="checkbox"/>
operTm	TimeStamp	CO			AC_CO_O	
origin	Originator	CO, ST			AC_CO_O	<input checked="" type="checkbox"/>
ctlNum	INT8U	CO, ST		0..255	AC_CO_O	<input checked="" type="checkbox"/>
stVal	BOOLEAN	ST	dchg	FALSE   TRUE	AC_ST	<input checked="" type="checkbox"/>
q	Quality	ST	qchg		AC_ST	<input checked="" type="checkbox"/>
t	TimeStamp	ST			AC_ST	<input checked="" type="checkbox"/>
stSeld	BOOLEAN	ST	dchg		AC_CO_O	<input checked="" type="checkbox"/>
<i>substitution</i>						
subEna	BOOLEAN	SV			PICS_SUBST	
subVal	BOOLEAN	SV		FALSE   TRUE	PICS_SUBST	
subQ	Quality	SV			PICS_SUBST	
subID	VISIBLE STRING64	SV			PICS_SUBST	
<i>configuration, description and extension</i>						
pulseConfig	PulseConfig	CF			AC_CO_O	
ctlModel	CtlModels	CF			m	<input checked="" type="checkbox"/>
sboTimeout	INT32U	CF			AC_CO_O	<input checked="" type="checkbox"/>
sboClass	SboClasses	CF			AC_CO_O	<input checked="" type="checkbox"/>
d	VISIBLE STRING255	DC		Text	o	<input checked="" type="checkbox"/>
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

## 6.11 DPC: Controllable double point

SPC class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>control and status</i>						
ctlVal	BOOLEAN	CO		off (FALSE)   on (TRUE)	AC_CO_M	<input checked="" type="checkbox"/>
operTm	TimeStamp	CO			AC_CO_O	
origin	Originator	CO, ST			AC_CO_O	<input checked="" type="checkbox"/>
ctlNum	INT8U	CO, ST		0..255	AC_CO_O	<input checked="" type="checkbox"/>
stVal	CODED ENUM	ST	dchg	intermediate-state   off   on   bad-	AC_ST	<input checked="" type="checkbox"/>
q	Quality	ST	qchg		AC_ST	<input checked="" type="checkbox"/>
t	TimeStamp	ST			AC_ST	<input checked="" type="checkbox"/>
stSeld	BOOLEAN	ST	dchg		AC_CO_O	<input checked="" type="checkbox"/>
<i>substitution</i>						
subEna	BOOLEAN	SV			PICS_SUBST	
subVal	CODED ENUM	SV		intermediate-state   off   on   bad-	PICS_SUBST	
subQ	Quality	SV			PICS_SUBST	
subID	VISIBLE STRING64	SV			PICS_SUBST	
<i>configuration, description and extension</i>						
pulseConfig	PulseConfig	CF			AC_CO_O	<input checked="" type="checkbox"/>
ctlModel	CtlModels	CF			m	<input checked="" type="checkbox"/>
sboTimeout	INT32U	CF			AC_CO_O	<input checked="" type="checkbox"/>
sboClass	SboClasses	CF			AC_CO_O	<input checked="" type="checkbox"/>
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLND_A_M	
cdcName	VISIBLE STRING255	EX			AC_DLND_A_M	
dataNs	VISIBLE STRING255	EX			AC_DLND_M	

## 6.12 INC: Controllable integer status

SPC class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>control and status</i>						
ctlVal	INT32	CO			AC_CO_M	<input checked="" type="checkbox"/>
operTm	TimeStamp	CO			AC_CO_O	
origin	Originator	CO, ST			AC_CO_O	<input checked="" type="checkbox"/>
ctlNum	INT8U	CO, ST		0..255	AC_CO_O	<input checked="" type="checkbox"/>
stVal	INT32	ST	dchg		AC_ST	<input checked="" type="checkbox"/>
q	Quality	ST	qchg		AC_ST	<input checked="" type="checkbox"/>
t	TimeStamp	ST			AC_ST	<input checked="" type="checkbox"/>
stSeld	BOOLEAN	ST	dchg		AC_CO_O	<input checked="" type="checkbox"/>
<i>substitution</i>						
subEna	BOOLEAN	SV			PICS_SUBST	
subVal	INT32	SV			PICS_SUBST	
subQ	Quality	SV			PICS_SUBST	
subID	VISIBLE STRING64	SV			PICS_SUBST	
<i>configuration, description and extension</i>						
ctlModel	CtlModels	CF			m	<input checked="" type="checkbox"/>
sboTimeout	INT32U	CF			AC_CO_O	<input checked="" type="checkbox"/>
sboClass	SboClasses	CF			AC_CO_O	<input checked="" type="checkbox"/>

minVal	INT32	CF			o	
maxVal	INT32	CF			o	
stepSize	INT32U	CF		1 ... (maxVal – minVal)	o	
d	VISIBLE STRING255	DC		Text	o	
dU	UNICODE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

### 6.13 DPL: Device name plate

DPL class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	supported
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>configuration, description and extension</i>						
vendor	VISIBLE STRING255	DC			m	
hwRev	VISIBLE STRING255	DC			o	
swRev	VISIBLE STRING255	DC			o	
serNum	VISIBLE STRING255	DC			o	
model	VISIBLE STRING255	DC			o	
location	VISIBLE STRING255	DC			o	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

### 6.14 LPL: Logical node name plate

LPL class						
Attribute Name	Attribute Type	FC	TrgOp	Value/Value Range	m/o/c	
DataName	Inherited from Data Class (see IEC 61850-7-2)					
DataAttribute						
<i>configuration, description and extension</i>						
vendor	VISIBLE STRING255	DC			m	
swRev	VISIBLE STRING255	DC			m	
d	VISIBLE STRING255	DC			m	
dU	UNICODE STRING255	DC			o	
configRev	VISIBLE STRING255	DC			AC_LNO_M	
ldNs	VISIBLE STRING255	EX		shall be included in <b>LLNO</b> only; for example "IEC 61850-7-4:2003"	AC_LNO_EX	
lnNs	VISIBLE STRING255	EX			AC_DLD_M	
cdcNs	VISIBLE STRING255	EX			AC_DLNDA_M	
cdcName	VISIBLE STRING255	EX			AC_DLNDA_M	
dataNs	VISIBLE STRING255	EX			AC_DLN_M	

## 7 TISSUES Implementation Conformance Statement

Template version 0.3

Date: October 28, 2010

### 7.1 Introduction

This document provides a template for the tissues conformance statement. According to the UCA IUG QAP the tissue conformance statement is required to perform a conformance test and is referenced on the certificate.

This document is applicable for IPCOMM ipConv Gateway with firmware version 2.01.

### 7.2 Mandatory Intop Tissues

During the October 2006 meeting IEC TC57 working group 10 decided that:

- green Tissues with the category “IntOp” are mandatory for IEC 61850 edition 1
- Tissues with the category “Ed.2” Tissues should not be implemented.

Below table gives an overview of the implemented IntOp Tissues.

Part	Tissue Nr	Description	Implemented Y/na
8-1	116	GetNameList with empty response?	na
	165	Improper Error Response for GetDataSetValues	na
	183	GetNameList error handling	na
7-4	None		
7-3	28	Definition of APC	na
	54	Point def xVal, not cVal	na
	55	Ineut = Ires ?	na
	60	Services missing in tables	na
	63	mag in CDC CMV	na
	219	operTm in ACT	na
	270	WYE and DEL rms values	na
7-2	30	control parameter T	Y
	31	Typo	na
	32	Typo in syntax	na
	35	Typo Syntax Control time	na
	36	Syntax parameter DSet-Ref missing	na
	37	Syntax GOOSE "T" type	na
	39	Add DstAddr to GoCB	na
	40	GOOSE Message "AppID" to "GoID"	na
	41	GsCB "AppID" to "GsID"	na
	42	SV timestamp: "EntryTime" to "TimeStamp"	na
	43	Control "T" semantic	Y
	44	AddCause - Object not sel	Y
	45	Missing AddCauses (neg range)	Y
	46	Synchro check cancel	na
	47	"," in LD Name?	Y
	49	BRCB TimeOfEntry (part of #453)	-
	50	LNNName start with number?	Y
	51	ARRAY [0..num] missing	na
	52	Ambiguity GOOSE SqNum	na
	53	Add DstAddr to GsCB, SV	na
151	Name constraint for control blocks etc.	Y	
166	DataRef attribute in Log	na	

Part	Tissue Nr	Description	Implemented Y/na
	185	Logging - Integrity periode	na
	189	SV Format	na
	190	BRCB: EntryId and TimeOfEntry (part of #453)	-
	191	BRCB: Integrity and buffering reports (part of #453)	-
	234	New type CtxInt (Enums are mapped to 8 bit integer)	na
	275	Confusing statement on GI usage (part of #453)	-
	278	EntryId not valid for a server (part of #453)	-
Part 6	1	Syntax	Y
	5	tExtensionAttributeNameEnum is restricted	Y
	8	SIUnit enumeration for W	Y
	10	Base type for bitstring usage	na
	17	DAI/SDI elements syntax	Y
	169	Ordering of enum differs from 7-3	Y

NOTE: Tissue 49, 190, 191, 275 and 278 are part of the optional tissue #453, all other technical tissues in the table are mandatory if applicable.

NOTE: Editorial tissues are marked as "na".

NOTE: Final proposal on tissue 45 is not defined yet

### 7.3 Optional IntOp Tissues

After the approval of the server conformance test procedures version 2.2 the following IntOp tissues were added or changed. It is optional to implement these tissues.

Part	Tissue Nr	Description	Implemented Y/N/na
8-1	246	Control negative response (SBOs) with LastApplError	na
8-1	545	Skip file directories with no files	na
7-2	333	Enabling of an incomplete GoCB	na
7-2	453	Combination of all reporting and logging tissues	Y
6	245	Attribute RptId in SCL is optional	Y
6	529	Replace sev - Unknown by unknown	na

## 7.4 Other Implemented Tissues

<Complete below table of other implemented tissues, these tissues should have no impact on interoperability>

Part	Tissue Nr	Description

- **Instruction and comments on using this template**
  
- **Comments**
- Tissue 235 "Extension of name length" for dataset references has been changed from IntOp to Ed.2 and has been removed from the IntOp list
- Tissue 38 "Change Appld into Gold" to match part 7-2 with part 8-1 has been changed from IntOp to Ed.2 and has been removed from the IntOp list
- Tissue 45 "Additional AddCauses" has been changed from green to red
- Tissue 65 category has been changed from IntOp to Ed2
- Even intop tissues may change. Compare <http://www.tissues.iec61850.com> for most recent status
- Questions and comments can be e-mailed to: [helpdesk@ucausersgroup.org](mailto:helpdesk@ucausersgroup.org)

- **Instructions**

- format of the document may be changed into your company format
- enter the applicable IED name and firmware version
- update the Y/na values in the Mandatory tissue table
- update the Y/N/na values in the Optional tissue table
- remove the instructions, comments and revision history of the template

- **Revision history**

Revision	Remarks
0.1	First version of the UCAIUG template
0.2 (okt 2008)	Removed tissue 38 from the list Added a note on tissue 45
0.3 (okt 2010)	Tissue 65 category has been changed from IntOp to Ed2. Removed tissue 65 from the intop list