

Feeder Terminal

REF 542plus

IEC 61850 TISSUES Implementation Conformance Statement for REF 542plus



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1 Introduction

This document is applicable to IEC 61850 interface version ETH V1E.07 and provides the REF 542plus tissues conformance statement from 08.05.2009 according to edition 1 of the IEC 61850 standard.

The REF 542plus is certified against the UCA International Users Group Device Test Procedures revision 1.1.

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.

The latest UCA International Users Group Device Test Procedures revision related to the creation date of this document is revision 2.2 from October 8, 2007.

Below table gives an overview of the implemented IntOp Tissues per definition of UCA International Users Group Device Test Procedures revision 2.2, the Tissue status of certified revision 1.1 and the actual status of the Tissues according to the official web page: <http://www.tissues.iec61850.com> at creation date of this document.

The conformance (M/O/-) column indicates the requirements:

- Mx.y; Mandatory, tissue is included in the UCA Device conformance test procedures version x.y and stated as mandatory.
- new; A new mandatory entry on the official web page for edition 1 of the standard not included in a test procedure revision.
- Edx; The Tissue is moved to a new edition of the standard with version number x.
- Ox.y; Optional, the tissue is not yet included in the test procedures or it's a recommendation or it's optional in the IEC 61850 documents of version x.y.
- tbd; To be defined, the proposal is not defined in such detail to be implemented or tested.
- Ntp; Short form of “No impact on this part” and means, that this item is entered as a Tissue of another Part of the standard.
- - ; Not applicable, just editorial, no change for implementation and testing.

The supported (Sup) column indicates the current implementation status:

- Y ; Yes the tissue is implemented in the device
- N ; No the tissue is not implemented in the device
- na ; Not applicable, the tissue is not applicable for the device or editorial

For more details to technical issues and the latest changes check following official web page: <http://www.tissues.iec61850.com>

1.1 Document information

Revision History

Revision	Date	Note
1VCD600586 C	3 Apr 2007	Corrections based on KEMA remarks
1MRS756362 A	11 May 2007	Changes in layout. ID-number changed from 1VCD600586 to 1MRS756362
1MRS756362 B	17 Nov 2008	Changes due to release 2.6
1MRS756362 C	8 Sept 2009	Changes due to release 2.6SP1, UCA Device conformance test procedures version 2.2 and with status of TISSUE database from 08.05.2009

2 IEC 61850 part 6 Tissues

Part 6 No	Clause/ Subclause	Paragraph Figure/ Table	Final change	M/O/-	Sup
#1	Annex A5		SCL Syntax (Schema correction in SCL_Communication.xsd all [0-2]?d{1,2}\.[0-2]?d{1,2}\.[0-2]?d{1,2}\.[0-2]?d{1,2} changed to [0-2]?d{1,2}\.[0-2]?d{1,2}\.[0-2]?d{1,2}\.[0-2]?d{1,2})	M 1.1 M 2.2	Y
#3	Annex B		Missing ENUMs Check the ENUMs and complete the appendix: Auto-RecSt, FltLoop, PmpCtl; The ICD/SCD files should include these ENUMS when used	M 1.1 Ed2	Y
#5			tExtensionAttributeNameEnum is restricted (Schema correction in SCL_Enums.xsd Oper, SBO, SBOw and Cancel added.)	M 1.1 M 2.2	Y
#6			ReportControl/OptFields The "segmentation" attribute in the *ReportControl/OptFields* section of SCL should be deleted.	O 1.1 Ed2	Y
#7			Duplication of attributes The unique key in SCL schema is the name without FC, therefore it is not possible to specify the same attribute with different FCs. This is also not needed: the only attribute with two FCs are setting parameters (FC=SG, SE), where each specification with SG implicitly means an SE on MMS level, if editing is supported at all.	O 1.1 Ed2	na
#8	Annex B		Use name Watts for code 62 instead of W	O 1.1 M 2.2	Y
#9	Annex A		Data Set reference in CBs Change XML schema to allow control blocks without a dataset reference	O 1.1 Ed2	na
#10	Annex A		Base type for bitstring usage Add the bType <i>Check</i> to the schema, to be used for the Check attribute. (Schema correction in SCL_Enums.xsd <i>Check</i> added in tPredefinedBasicTypeEnum.)	O 1.1 M 2.2	Y
#11			Schema for IP Addr? IED-Name could be used as a host name. To ensure interoperability the IP address shall be mandatory in the SCD-File.	O 1.1 Ed2	na
#13	9.3.2	Table 9	configVersion and parameterization New Attributes in LPL: - paramRev: incremented as soon as a parameter has changed (i.e.setting): online and in the SCD file. - valueRev: incremented as soon as a default value (FC= CF, FC=ST) has been changed within the SCL file only. Need also to update part 7-3 and indicate these new attributes are mandatory or optional	O 1.1 Ed2	na
#15			bufOvfl in Schema? The " bufOvfl " attribute in the* ReportControl/OptFields* section of SCL should be deleted.	O 1.1 Ed2	Y
#17			DAI/SDI elements syntax	M 2.2	Y
#169	Appendix B		Ordering of enum differs from 7-3 Has to be changed for <EnumType id="angid"> ord="9" from Aother to Vother ord="10" from Vother to Aother	M 2.2	Y
#245	9.3.8		Attribute RptID in SCL (Schema correction in SCL_IED.xsd tReportControl <xs:attribute name="rptID" type="tName" use="required"/> has changed to <xs:attribute name="rptID" type="tName" use="optional"/>	O 2.2	N

Part 6 No	Clause/ Subclause	Paragraph Figure/ Table	Final change	M/O/-	Sup
#529	Annex B (normative)		Replace sev - Unknown by unknown The first EnumVal for <EnumType id="sev"> is not Unknown but unknown (refer to 7-3).	O 2.2	Y

3 IEC 61850 part 7-2 Tissues

Part 7-2 No	Clause/ Subclause	Paragraph Figure/ Table	Final change	M/O/-	Sup
#30	17.5.2.3		Control parameter T	M 1.1 M 2.2	na
#31	14.2.3.2.3.2		Typo The sentence for quality-change should be: "... on a quality-change ..." The sentence for data-update should be: "... on a data-update ..."	M 1.1 M 2.2	na
#32	14.2.2.1 14.4.2.1	Table 23, Table 25	Typo in syntax Change to "TrgOps"	M 1.1 M 2.2	na
#34	15.1	figure 26; and figure 27	Publish.request explanation Add note: "Applications may choose to publish both transitions of transient or pulsed data attribute values (e.g. a trip). Other applications could choose to publish only on a significant event (e.g. start)."	M 1.1 Ed2	na GOOSE
#35	17.5.2.3	Table 36	Typo Syntax Control time Change T attribute type from "EntryTime" to "Time-Stamp".	M 1.1 M 2.2	Y
#36	15.2.2.3 15.2.2.4		Syntax parameter Dset-Ref missing	M 2.2	na GOOSE
#37	15.2.3.1		Syntax GOOSE "T" type Change T attribute type from "EntryTime" to "Time-Stamp".	M 1.1 M 2.2	na GOOSE
#38	15.2.1 15.2.1.4		Change GoCB attribute name from "AppID" to "GoID".	M 1.1 Ed2	na GOOSE
#39	15.2.1		Add DstAddr to GoCB Add Attribute "DstAddress" after the Attribute "NdsCom" "15.2.1.8 DstAddress The attribute DstAddress shall be the SCSM specific addressing information like media access address, priority, and other information."	M 1.1 M 2.2	na GOOSE
#40	15.2.3.1 15.2.3.3		GOOSE Message "AppID" to "GoID" GOOSE message syntax. Change Attribute name from "AppID" to "GoID".	M 1.1 M 2.2	na GOOSE
#41	15.3.1 15.3.4.1		GsCB "AppID" to "GsiD" GsCB class definition. Change Attribute name from "AppID" to "GsiD".	M 1.1 M 2.2	na GOOSE
#42	16.4		Sampled value format. Change Attribute type from "EntryTime" to "TimeStamp".	M 1.1 M 2.2	na SV
#43	17.5.2.3		Change "The parameter T shall be the time when the client sends the control requests. Add NOTE: "Control requests can be Select, Operate, or Cancel."	M 1.1 M 2.2	na
#44	17.		Add new AddCause value: Object-not-selected 18	M 1.1 M 2.2	Y
#45	17.5.2.6	Table 39 and 40	Missing AddCauses	M 2.2	na
#46	17.3.3	Figures 33, 34	Synchro check - Cancelling a command as long as no Oper_resp+ has been received, compare new state diagram	tbd M 2.2	na
#47	19.2	Figure 40	". " in LD Name?	M 2.2	Y
#49	14.2.2.16		BRCB TimeOfEntry? (part of #453)	O 2.2	-

Part 7-2 No	Clause/Subclause	Paragraph Figure/ Table	Final change	M/O/-	Sup
#50	19.2		LNName start with number? Are LNName prefixes allowed to start with a number? No The LNName prefix shall start with a letter. Otherwise, mapping to MMS should restrict it, since MMS variable names are not allowed to start with a number.	M 2.2	N
#51	5.5.2	table 2	ARRAY [0..num] missing	M 2.2	na Y
#52	15.2.3.6		Ambiguity GOOSE SqNum	M 2.2	na
#53	15.3.1, 16.2.1	Table 30, 32	Add DstAddr to GsCB, SV	M 2.2	na
#151	19.2		Name constraint for control blocks etc. New definition in Ed2: Referencing an instance of a class The following naming conventions (structure, lengths and character set) for object names and object references shall apply: LDName ≤64 characters, application specific LNName = [LN-Prefix] LN class name [LN-Instance-ID] LN-Prefix = m characters (application specific); it may start with any character LN class name = 4 characters (for example, compatible logical node name as defined in IEC 61850-7-4) LN-Instance-ID = n numeric characters (application specific) m+n ≤7 characters DataObjectClassName ≤10 characters (as, for example, used in IEC 61850-7-4); no DataObjectClassName shall end with a numeric character DataObjectName = DataObjectClassName[Data-Instance-ID] Data-Instance-ID = n numeric characters, optional; n shall be equal for all instances of the same data class FCD ≤61 characters including all separators "." (without the value of the FC) FCDA ≤61 characters including all separators "." (without the value of the FC)	M 2.2	na
#166	14.3.3.2.7.3	second	DataRef attribute in Log	M 2.2	na
#185	14.3.3.2.7.3	last par of "Value	Logging - Integrity periode	M 2.2	na
#189	16.4	Table 34	SV Format	M 2.2	na
#190	14.2.2.1		BRCB: EntryId and TimeOfEntry (part of #453)	O 2.2	-
#191	14.2.2.5 14.2.2.12	third/first	BRCB: Integrity and buffering reports (part of #453)	O 2.2	-
#234	5.5.2		New type CtxInt	M 2.2	na
#275	14.2.3.2.3.4	1	Confusing statement on GI usage (part of #453)	O 2.2	-
#278	14.2.2.15		EntryId not valid for a server (part of #453)	O 2.2	-
#297	14.2.2.10		Sequence number	new	na
#298	14.2.2.1 & 14.2.4.1	Table 23 & 25	Type of SqNum	new	
#305	14.2.2.9, 14.2.3.2.2.9	Multiple	Reporting with BufTm=0	new	
#322	14.2.2.1 & 14.2.4.1		Write Configuration attribute of BRCBs	new	
#329	14.2.3.2.2.8	1	Reporting and BufOvl	new	
#333	15.2.1.3		Enabling of an incomplet GoCB	O 2.2	na
#335	14.2.3.2.2.8		Clearing of Bufovfl	new	
#348	14.2.4.	14.2.5.2	URCB class and report	new	

Part 7-2 No	Clause/ Subclause	Paragraph Figure/ Table	Final change	M/O/-	Sup
#349	14.2.	14.2.2.16, 14.2.3.2.2.9	BRCB TimeOfEntry has two definitions	new	
#453	14		Reporting & Logging model revision	O 2.2	

4 IEC 61850 Part 7-3 Tissues

Part 7-3 No	Clause/ Subclause	Paragraph Figure/ Table	Final change	M/O/-	Sup
#28	7.6.2		Definition of APC	O 1.1 M 2.2	na
#54	6.11	below Table 11	Point def xVal, not cVal	M 2.2	na
#55	7.4.5	Table 25	Ineut = Ires ? No changes	M 2.2	Y
#60		Table 13/21 and other	Services missing in tables	M 2.2	na
#63	General		mag in CDC CMV	M 2.2	na
#65	General		Deadband calculation of a Vector and trigger option	M 2.2	na
#68	General		New CDC ACI	O 1.1 Ed2	na
#219	7.3.5	Table 17	operTm in ACT	M 2.2	na
#270	7.4.5, 7.4.6		WYE and DEL rms values	M 2.2	na

5 IEC 61850 Part 7-4 Tissues

Part 7-4 No	Clause/Subclause	Paragraph Figure/ Table	Final change	M/O/-	Sup
#69	5.5.8		FltDiskm as is (compare 7-4 Am 1 CD) , Change LinLenKm to Linlenkm	O 1.1 Ed2	na
#72	General		Introduction of a new LN MMTN like MMXN for single phase metering. In the new LN MMTN there should be new data for the single phase metering quantity, i.e. PhWh, PhVArh, PhAh. For each phase the user has to create an instance.	M 1.1 Ed2	na
#73	5.11.3 5.11.4		In case additional measuring points are necessary, don't use numbered extension of data but use a different instance of the LN SIMG (SIML) (Should be solved via new process monitoring approach)	tbd Ed2	
#75	5.7.1	Str, Op	Str and Op in GAPC shall be optional.	M 1.1 Ed2	na
#76	6	CBOpCap SwOpCap	Put it into optional. In Retrofit situation the information may not be available for the SAS.	M 1.1 Ed2	na
#79	6	Table 9	Add new AutoRecSt status value 4 – unsuccessful Use the optional data "OpCnt" for LN RREC to indicate the reclosing cycle in progress. This counter will set to 0 if the AutoRecSt is in status ready OR a new DO for the counter may be required since OpCnt already has a semantic definition.	O 1.1 Ed2	N
#80	5.13		Change TCTR and TVTR Amp / Vol from Mandatory to Conditional	O 1.1 Ed2	na
#82	5.10		Create a new logical node MCXL class as it is shown in the Figure 1. In that figure one can be seen the LN performance as well as related attributes	O 1.1 Ed2	na
#83	5.6.6		Add new attributes to CSWI logical node as show in the Figure 2. The data attribute type should be ACI (new CDC)or ACT with the adding of the origin attribute	O 1.1 Ed2	na

IEC 61850 Part 8-1 Tissues

Part 8-1 No	Clause/ Subclause	Paragraph Figure/ Table	Final change	M/O/-	Sup
#109	Annex B	Table B1	GOOSE, GSE, SV Addresses Extent address spaces in 5 th byte: GOOSE 01-0c-cd-01-00-00 bis 01-0c-cd-01-FF-FF GSE 01-0c-cd-02-00-00 bis 01-0c-cd-02-FF-FF Multicast Sampled values 01-0c-cd-04-00-00 bis 01-0c-cd-04-FF-FF Table B1 is informative, no restriction, it is just a recommendation	O 1.1 Ntp	na
#114	17.1.1.1 & 17.1.1.2	Note	Naming URCB Distinguish 2 naming conventions, 1 with an instance number, another without, example - urcbST01 if RCB is visible from any client - urcbST if RCB is private to the client 's connection (recommendation)	O 1.1 Ntp	N
#116	8.2.1.3, 9.2.2.3		GetNameList with empty response? A MMS GetNameList request with a non-existing domain shall be responded by "Confirmed Error-PDU"	M 1.1 M 2.2	Y
#118	23.1		File directory When the last character of FileName is the file separator it's a directory. E.g. "LD\KEMA" is a file and "LD\KEMA\" is a directory	M 1.1 Ed2	na 1.1 Y
#119			MMS GetCapabilityList required? the MMS GetCapabilityList service should be supported and should return for example the SCL-File services capabilities (??)	tdb Ed2	
#120	8.1.2.2		Type - Mod.stVal and Mod.ctlVal CtxInt shall be defined as a generic data type in 7-2: either as an Int32 or as an ENUMERATED depending on the context. The definition of the attributes stVal, ctlVal, subVal in the CDC INS/INC is changed from Int32 to CtxInt.In 7-4, the enumerations lead to set the CtxInt to ENUMERATED. Therefore no change required in 8-1, because ENUMERATED are already mapped. As a result ENUMERATED attributes (as e.g. stVal, ctlVal) are mapped to INT8 (not to INT32)	O 1.1 Ntp	Y
#121	18.1.2		GSSE/GOOSE subscriber behaviour in case of lost, double, out-of-order or missing GSSE/GOOSE-messages is vendor or application specific and may (should) be defined in the PIXIT.	O 1.1 Ed2	na
#128	18, 19		Add DstAddr to GsCB, SV 8-1 will add a DstAddress element to the GSCB per Table 51 of IEC 61850-8-1. The element will be mandatory "r". The VLAN information in the 8-1 datatype shall be ignored for the case of GSCB	O 1.1 Ntp	na
#165	14.3.1		Improper Error Response for GetDataSetValues GetDataSetValues request with a non-existent DataSet should result in an MMS ErrorResponse of Class= ACCESS and Error Code= OBJECT-NON-EXISTENT	O 1.1 M 2.2	Y
#177	17.1.1.2	Table 39	Ignoring OptFids bits for URCB The server ignores the buffer-overflow and entryID bits in a write request of the (U)RCB-OptFids and the value is always 0 when reading these bits	O 1.1 Ed2	na
#183	9.3	Table 17	GetNameList error handling When the client request a MMS getNamelist with an unknown domain object reference, the server replies with an MMS ServiceError with errorClass access object-non-existent. Update table 17	? 1.1 M 2.2	Y
#196	Annex E		SCL for Control The ctlVal and Oper data attribute should be configured in SCL as follows: <DA name="ctlVal" fc="CO" bType="<BOOLEAN>" /> <DA name="Oper" fc="CO" bType="Struct" type="<myOper>"	O 1.1 Ed2	N

Part 8-1 No	Clause/ Subclause	Paragraph Figure/ Table	Final change	M/O/-	Sup
#198	See #114		<p>Instantiation of UR CB If the IEC 61850-6 RCB attribute "index" is TRUE, the RCB (URCB or BR CB) instance numbering shall start with 01 and progress through 99. Two digits of instance numbering is mandatory.</p> <p>If the IEC 61850-6 RCB attribute "index" is FALSE, the RCB (URCB or BR CB) instance shall be with instance number of 01."</p>	O 1.1 Ed2	na
#246	20	3	Control negative response	O 2.2	Y
#545	23.1		File directories	O 2.2	Y

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