**58651.8-
2023**

2023

58651.8—2023

1 « -
— » (« »)

2 016 « »

3 14 2023 . 127-

4

*26
29 2015 . 162- « ». -
) (1
— »,
( ) « ».
». « -

(www.rst.gov.ru)*

© . « », 2023

, -
-

II

58651.8—2023

«   -
.   -
»
                                              ,
                                              -
,   .

,
                              ,
,   ,   -
.   -
,   CIM   -

(. [1]   [2]).
                                              -
.

III

58651.8—2023

United power system and isolated power systems. Information model of power industry.
Operational technological information exchange profile of information model

— 2023—04—01

1

1.1

-
,   -
,   ,   -
TASE.2   (ICCP)   (.   [3]),

,   ,   .

1.2

,
,   ,   -
.

1.3   ,   ,   -
-
.

1.4   -
TASE.2   (ICCP)   (.   [3]),   -

.   -
,
60870-5-104,   .

2

:
58651.1   .
.
58651.2   .
.
58651.3   .
.   -
110—750
60870-5-104   .   5.   .
104.   870-5-101

1

58651.8—2023

—

—

«   »,   1   ,

«   »   .

,   ,

,   .

(   ).

,   ,   ,   ,

,   ,   .

3   ,   ,

3.1   58651.1,

:

3.1.1   **(   ):**   ,

,   ,

,   .

3.1.2   **:**

,   ,   ,   ,

,

,   ,   ,

.

3.2   :

IPv4   —   IP;

IPv6   —   IP;

ICCP   —   (Inter-Control Center Communications Protocol);

IP —   (Internet Protocol);

MMS —   (Manufacturing Message Specification);

OSI —   (Open Systems Interconnection);

TCP —   (Transmission Control Protocol);

TLS —   (Transport Layer Security).

4

4.1   ,

(. [1]   [2]),   «rf:»,   -

58651.1.

4.2   ,   ,

58651.1,   58651.2   58651.3.

4.3   ,

58651.1,   58651.2   58651.3.

5

5.1

,   1.

2

1 —

	AnalogControl	Control
. , / - . ProvidedBilateralPoints. - , BilateralExchangeAgreement	BilateralExchangeActor	IdentifiedObject
. - , -	BilateralExchangeAgreement	IdentifiedObject
. . - . - « », - , - , « », « - », « » . .	CommunicationLink	PowerSystem Resou rce
. - . - , - / -	Control	IOPoint
	IOPoint	IdentifiedObject
IP,	IPAccessPoint	CommunicationLink
, . - , , -	Measurement	IdentifiedObject
, - , - , -	Measurementvalue	IdentifiedObject
. ICCP,	ProvidedBilateralPoint	IdentifiedObject
, - TCP	TCPAccessPoint	IPAccessPoint

5.2 -

, 2.

58651.8—2023

2 —

, - ,	Analog	Measurement
	AnalogValue	Measurementvalue
- (, , .)	Command	Control
, - -	Discrete	Measurement
	DiscreteValue	Measurementvalue
ICCP. - ICCP, . « » - . ICCP «DataValue»	ICCPProvidedPoint	ProvidedBilateralPoint
ICCP. , / - ICCP	ICCPVirtualControlCentre	BilateralExchangeActor
ICCP. , ICCP	ISOUpperLayer	TCPAccess Point
509[1]\ - , 509	PublicX509Certificate	—
. « — - »	RaiseLowerCommand	AnalogControl
, -	SetPoint	AnalogControl
ICCP. - ICCP	TASE2BilateralTable	BilateralExchangeAgreement
. - , - (, «0» — « », - «1» — «). ValueToAlias.	ValueAliasSet	IdentifiedObject
. .	ValueToAlias	IdentifiedObject
[1]> , , , .		

4

6

6.1   -
                                                   ,   3.

3 —

	(.)	(.)	
	maxValue	Analog	
	minValue	Analog	
, -	normalValue	Analog	
«value»	maxValue	AnalogControl	
«value»	minValue	AnalogControl	
	value	AnalogValue	
«value», -	normalValue	Command	
-	unitMultiplier	Control	UnitMultiplier
	unitSymbol	Control	UnitSymbol
	maxValue	Discrete	
	minValue	Discrete	
, -	normalValue	Discrete	
	value	DiscreteValue	
. - («VCC») - (« »)	scope	ICCPProvidedPoint	ICCPScopeKind[1]
ICCP	pointType	ICCPProvidedPoint	ICCPPointKind[1]
ICCP	pointQuality	ICCPProvidedPoint	ICCPQualityKind[1]
ICCP	accessPriviledge	ICCPProvidedPoint	ICCPAccess-PrivilegeKind[1]
(. [4])	applicationSecurity-Requirement	ICCPVirtualControl-Centre	Application-SecurityKind[1]

58651.8—2023

3

	(.)	(.)	
. - « » — - , , - - . « » «calling», « - » , . « » - «calling», « » , -	clientAndServer	ICCPVirtualControl-Centre	
. , - -	calling	ICCPVirtualControl-Centre	
,	minimum-UpdateInterval	ICCPVirtualControl-Centre	
, - - , - ( ) - .	nameOfLocalICC	ICCPVirtualControl-Centre	
. « », (. [5])	transportSecurity-Requirement	ICCPVirtualControl-Centre	
1. - , - « ». « » (. [6])	supportForBlockl	ICCPVirtualControl-Centre	
2. - - (Data Set), — « » (. [6])	supportForBlock2	ICCPVirtualControl-Centre	
3. - , - — « » (. [6])	supportForBlock3	ICCPVirtualControl-Centre	
4. - , — « » (. [6])	supportForBlock4	ICCPVirtualControl-Centre	
5. - , — « » (. [6])	supportForBlock5	ICCPVirtualControl-Centre	

6

3

	(.)	(.)	
8. - - , — « - » (. [6])	supportForDepriciated-Block8	ICCPVirtualControl-Centre	
IP - , IP. addressType	address	IPAccessPoint	
IP	addressType	IPAccessPoint	IPAddressKind[1]
. - IP - . «addressType»	gateway	IPAccessPoint	
IP, -	subnet	IPAccessPoint	
, - , . - - (, - ICCP) OSL - (. [7])	apTitle	ISOUpperLayer	
. - OSI	osiPsel	ISOUpperLayer	
. - - OSI	osiSsel	ISOUpperLayer	
. - - OSI	osiTsel	ISOUpperLayer	
. OSI	apInvoke	ISOUpperLayer	
- - ISO	aeInvoke	ISOUpperLayer	
- ,	aeQual	ISOUpperLayer	
. - , -	unitSymbol	Measurement	UnitSymbol[1^]

58651.8—2023

3

	(.)	(.)	
. - , - -	phases	Measurement	PhaseCode[1])
. / , -	unitMultiplier	Measurement	UnitMultiplier[1])
. - , « », « - », « »	measurementType	Measurement	
. -	timeStamp	Measurementvalue	
. - , . .509[2])	issuerName	PublicX509Certificate	
- .509[2])	serialNumber	PublicX509Certificate	
Control, value, ,	normalValue	SetPoint	
- ,	bilateralTableID	TASE2BilateralTable	
TASE.2, - TASE.2.	tase2version	TASE2BilateralTable	
- . - -	bilateralTableVersion	TASE2BilateralTable	
— - - TCP -	keepAliveTime	TCPAccessPoint	
. - (, « . »). TCP . - TLS (. [7] [8]) — 102; , TLS (. [7] [8]) — 3782	port	TCPAccessPoint	

8

58651.8—2023

3

	(.)	(.)	
, -	value	ValueToAlias	

¹) -
.
²) ,
.

6.2 -
, 4.

4 — -

			(.)	-
, -	ACDCTerminal	Measurement	Measurements	0..*
	Analog	AnalogValue	AnalogValues	0..*
-	AnalogControl	AnalogValue	AnalogValue	1
-	AnalogValue	Analog	Analog	1
, -	AnalogValue	AnalogControl	AnalogControl	0..1
- , -	BilateralExchange-Actor	BilateralExchange-Agreement	ProviderBilateral-Exchange	0..*
-	BilateralExchange-Actor	BilateralExchange-Agreement	ConsumerBilateral-Exchange	0..*
	BilateralExchange-Actor	CommunicationLink	CommunicationLink	0..*
, -	BilateralExchange-Actor	ProvidedBilateral-Point	ProvidedBilaterall-OPoint	0..*
, -	BilateralExchange-Agreement	BilateralExchange-Actor	Provider	1
	BilateralExchange-Agreement	BilateralExchange-Actor	Consumer	0..1
, -	Command	ValueAliasSet	ValueAliasSet	0..1
-	Command	DiscreteValue	DiscreteValue	1
,	Communication-Link	BilateralExchange-Actor	BilateralExchang-Actor	0..1
, -	Control	PowerSystem-Resource	PowerSystem-Resource	0..1
	Discrete	DiscreteValue	DiscreteValues	0..*

9

58651.8—2023

4

			(.)	-
-	DiscreteValue	Discrete	Discrete	1
-	DiscreteValue	Command	Command	0..1
ICCP - -	IOPoint	ProvidedBilateral-Point	BilateralToIOPoint	0..*
, -	ISOUpperLayer	PublicX509-Certificate	UpperLayerPublicX-509Certificate	0..*
, -	Measurement	ACDCTerminal	Terminal	0..1
, - -	Measurement	PowerSystem-Resource	PowerSystem-Resource	0..1
, - -	PowerSystem-Resource	Control	Controls	0..*
,	PowerSystem-Resource	Measurement	Measurements	0..*
ICCP - -	ProvidedBilateral-Point	IOPoint	IOPoint	0..1
-	ProvidedBilateral-Point	BilateralExchange-Actor	BilateralExchange-Actor	1
ICCP, - -	PublicX509-Certificate	ISOUpperLayer	ISOUpperLayer	0..1
TCP, TLS	PublicX509-Certificate	TCPAccessPoint	TCPAccessPoint	0..1
, -	RaiseLower-Command	ValueAliasSet	ValueAliasSet	0..1
, - TLS	TCPAccessPoint	PublicX509-Certificate	PublicX509-Certificate	*
,	ValueAliasSet	Command	Commands	0..*
, - -	ValueAliasSet	RaiseLower-Command	RaiseLower-Commands	0..*
-	ValueAliasSet	ValueToAlias	Values	1..*
, -	ValueToAlias	ValueAliasSet	ValueAliasSet	1

10

(   )

.1   -
.1.

.1

	(.)	(.)
(. [4])	ApplicationSecurityKind	—
	ICCPAccessPrivilegeKind	—
ICCP	ICCPPointKind	—
ICCP	ICCPScopeKind	—
ICCP	ICCPQualityKind	—
IP	IPAddressKind	—

.2   -
.2.

.2

	(.)	(.)
« ». - MMS	nonSecure	ApplicationSecurityKind
« ». (-) (. [4], 11) - MMS	secure	ApplicationSecurityKind
« 2 ». - 2 MMS	endToEndSecure	ApplicationSecurityKind
« ». - ICCP (ICCPPoint)	readonly	ICCPAccessPrivilegeKind
« ». - ICCP ,	readWrite	ICCPAccessPrivilegeKind
ICCP -	discrete	ICCPPointKind
ICCP -	real	ICCPPointKind
« » ICCP -	state	ICCPPointKind
« » ICCP -	stateSupplemental	ICCPPointKind
- (ICCP)	singleProtectionEvent	ICCPPointKind
- (ICCP)	packed Protection Event	ICCPPointKind
ICCP	none	ICCPQualityKind

11

58651.8—2023

.2

	(.)	(.)
	qualityOnly	ICCPQualityKind
	qualityAndTime	ICCPQualityKind
-	extended	ICCPQualityKind
, -	extendedwithQualityTime	ICCPQualityKind
, -	vCC	ICCPScopeKind
, - -	iCC	ICCPScopeKind
- «.» IPv4	IPv4	IPAddressKind
- «.» IPv6	IPv6	IPAddressKind
1	s1	PhaseCode
1 2	s12	PhaseCode
1,2	s12N	PhaseCode
1	s1N	PhaseCode
2	s2	PhaseCode
2	s2N	PhaseCode
,	F	UnitSymbol
,	g	UnitSymbol
,	H	UnitSymbol
,	Hz	UnitSymbol
,	m	UnitSymbol
, .	m2	UnitSymbol
, .	m3	UnitSymbol
,	min	UnitSymbol
,	N	UnitSymbol
,	ohm	UnitSymbol
,	Pa	UnitSymbol
,	rad	UnitSymbol
,	S	UnitSymbol
, •	VAh	UnitSymbol
, •	VArh	UnitSymbol
,	Wh	UnitSymbol

[1]   61968 (   ) .   - (Application integration at electric utilities — System interfaces for distribution management)

[2]   61970 (   ) (EMS-API) [Energy management system application program interface (EMS-API)]

[3]   60870-6 (   ) .   6. , - (Telecontrol equipment and systems — Part 6: Telecontrol protocols compatible with ISO standards and ITU-T recommendations)

[4]   62351-4:2018 . . 4. , MMS, (Power systems management and associated information exchange — Data and communications security — Part 4: Profiles including MMS and derivatives)

[5]   62351-6:2020 . - . 6. 61850 (Power systems management and associated information exchange — Data and communications security — Part 6: Security for IEC 61850)

[6]   60870-6-702:2014 . 6-702. - , - . - (TASE.2) (Telecontrol equipment and systems — Part 6-702: Telecontrol protocols compatible with ISO standards and ITU-T recommendations — Functional profile for providing the TASE.2 application service in end systems)

[7]   /   7498-3:1997 . . - . 3. (Information technology — Open Systems Interconnection — Basic reference model — Part 3: Naming and addressing)

[8]   61850 (   ) (Communication networks and systems for power utility automation)

58651.8—2023

621.311:006.354   27.010

:   ,
,   ,   ,

. .

. .

. .

. .