

58940— 

> > ,

II

1							1
2							1
3							2
4							3
5							3
Ī	5.1						3
	5.2						•
	5.3		••••••	•••••			
	5.4						
6	3.4						
0	C 4						
	6.1	•••••					
	6.2						
	6.3						
	6.4						_
7			•				6
	7.1						6
	7.2						9
	7.3						12
	7.4				(OBIS)		31
8							37
9							39
	9.1		(	)			39
	9.2	HDLC					40
	9.3	HDLC					41
	9.4	LLC	***************************************				41
	9.5						42
	9.6		DLM	IS/COSEM	IP		44
	9.7						44
	9.8						
10							_
	10.1		•••••				45
	10.1				••••••		
	10.2						45
1	1						
1:	-		,				
1:	<del>_</del>						
	13.1	•••					54
	13.1						
	13.3						
	13.4						
	13.5						
	13.6						58
		(	)			59	)

## 58940-2020

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) D75	
)	83
)	89
)	99
	101

Requirements for protocols *tor* the exchange of information between the components of the intelligent metering system and metering devices

**— 2021—01—01** 

,

·' . 62056 [1].

```
{
                ).
  3
  3.1
  3.2
                                                          ,
(OBIS- )
  2
                               11.
  3.3
                                                                     » (IC),
  3.4
  3.5
  3.6
                                                                            ).
  3.7
  3.8
  3.9
                      : 8
                                                                                              OBIS-
  3.10
. .).
  3.11
  3.12
                                         2-
                                                     12
                                                             15.
                                                                     » (object list).
            OBIS-
                         (OBIS-Lst).
  3.13
  3.14
  ¹> . (8].
```

```
3.15
3.16
4
AARQ —
                                           (
                                                      );
AARE —
                AARQ;
BCS —
DLMS/COSEM —
                                                                 [1];
HDLC —
                           OSI)1».
IPv4 —
IPv6 —
LDN —
LN —
SAP —
SN —
osı —
OBIS —
                          COSEM;
                                     (association).
                                                   ).
                               5);
                                  (HHU Hand Held Unit)
                                                                          ( );
5
5.1
5.1.1
                                                               OSI.
                                           3-
      (Application Level),
5.1.2
1-
2-
                                                                   . 8
                             ).
     . {10].
```

3-8 9. 5.1. P1 1-1 HDLCnopr PTY 1-1 saw 1-N HOLGrippin Прибор учетв изтвеории А/В/С/В Модем Xoct P2 (copedo) (EUMONT) BCS 1-1 NAME 1-N HOLOHOPY Концентретор -485-1 — -23 5.1 — 5.2 5.2.1 5.1. 1\*, 5.2.2 1 — 5.2.3 RS-232 RS-485, 2 ). 5.2.4 9600 / . HDLC ) : GSM. Ethernet PLC G3 5.2.5 IP- : TCP UDP ( . 9.6). : HDLC TCP (UDP). 5.2.6 (3]. HDLC. (HDLC) 5.3 5.3.1 5.3.2 5.4 5.1 5.1 —

( ) , -

<sup>1</sup>» . [3].

	( ). 0,4 -	
	( ) . 100	
D	( )	

6

6.1

6.1.1 COSEM.

0x01.

COSEM 6.1.2 COSEM

(LDN).

6.1.

6.1 —

	OBIS-			
-	0.0.42.0.0.255	1	2 octet-string 16	-
- (	0.0.40.0.0.255	15	,	

6.2

6.2.1 16

3-DLMS.

6.2.2

6.3

6.3.1 COSEM, **COSEM** 

6.3.2 DLMS/COSEM

```
58 40—2020
```

		1	
	16	32	46
(method access_mode)			I
(COSEM appfccabon context)	context_id(t)	context_id(1)	conlext_id(3)
(Security suite)	( =0)	(id = 3) KUZN-CTR-CMAC	(id = 3) KUZN-CTR-CMAC
	meciianrsm_id(O)	mechanism_»d(1)	mechanism_id(8)
	- (Get) - (Get with Block transfef)	• (Get) • (Get with Block transfer • (Selective Access') • (Action)	- (Get) - (Get with Block transfef) - (Selective Access) - (Action) - (Set) - (DataNotificatiori)

6.4 **COSEM** 6.4.1 DLMS/COSEM COSEM (LN) (SN). 6.4.2 **COSEM 08IS-**COSEM OBIS-6.4.3 **COSEM** 13-6.4.4 **COSEM** 6.4.5 **COSEM** 7 7.1 7.1.1 COSEM.

, ( ).

7.1.2 ( )

7.1.3 7.1

2\*.

7.1—

		( .)	<pyc. < th=""><th></th></pyc. <>	
1	0	Data		
3	0	Register		
4	0	Extended register		
5	0	Demand register		
6	0	Register activation		
7	1	Profile generic		
8	0	Clock		
9	0	Script table		
10	0	Schedule		
11	0	Special days table		
12	04	Association SN		
15	1	Association LN		*
17	0	SAP assignment		
18	0	Image transfer		
19	1	IEC Local Port Setup		
20	0	Activity calendar		
21	0	Register monitor		
22	0	Single action schedule		
23	1	IEC HDLC Setup	HDLC	
24	0.1	IEC twisted pair (1) setup		
25	0	M-BUS slave port setup		
26	0	Utility tables		
27	0.1	Modem configuration PSTN modem configuration		
28	02	Auto answer		

<sup>&</sup>lt;sup>11</sup> . (1]. <sup>2</sup>> . (9].

		( .)	( .)	
29	02	Auto connect		
30	0	Data protection		
40	0	Push setup		
41	0	TCP-UDP setup		
42	0	IPv4 setup		
43	0	MAC address setup (Ethernet setup)		
44	0	PPP setup		
45	0	GPRS modem setup		
46	0	SMTP setup		
47	0	GSM diagnostic		
48	0	IPv6 setup		
50	0.1	S-FSK Phy&MAC setup		
51	0	S-FSK Active initiator		
52	0	S-FSK MAC synchronization timeouts		
53	0	S-FSK MAC counters		
55	0.1	IEC 61334-4-32 LLC setup		
56	0	S-FSK Reporting system list		
57	0	ISO/1EC 8802-2 LLC Type 1 setup		
58	0	1SO/1EC 8802-2 LLC Type 2 setup		
59	0	ISO/1EC 8802-2 LLC Type 3 setup		
61	0	Register table		
62	0	Compact data		»
63	0	Status mapping		
64	01	Security setup		
65	0	Parameter monitor		
67	0	Sensor manager		
68	0	Arbitrator		
70	0	Disconnect control		
71	0	Limiter		
72	0	-Bus client		
73	0	Wireless Mode Q channel		

		( .)	( .)	
74	0	M-Bus master pod setup		
76		DLMS/COSEM server M-Bus port setup		
77		M-Bus diagnostic		
80		61334-4-32 LLC SSCS setup		
81		PRIME NB OFDM PLC Physical layer counters		
82		PRIME NB OFDM PLC MAC setup		
83		PRIME NB OFDM PLC MAC functional parameters		
84		PRIME NB OFDM PLC MAC counters		
85		PRIME NB OFDM PLC MAC network administration data		
86		PRIME NB OFDM PLC Application identification		
90		G3-PLC MAC layer counters		
91		G3-PLC MAC setup		
92		G3-PLC 6L0WPAN adaptation layer setup		
101		ZigBee® SAS startup		
102		ZigBee® SAS pin		
103		ZigBee® SAS APS fragmentation		
104		ZigBee® network control		
105		ZigBee® tunnel setup		
111		Account		
112		Credit		
113		Charge		
114		Token gateway		

'» . (11].

7.2 —

0	null-data	
1	array	
2	structure	
3	boolean	(TRUE. FALSE)
4	bit-string	
5	double-long	32-
6	double-long-unsigned	32-
9	octet-string	
10	visible-string	ASCII-
12	utf8-string	UTF-8
13	BCD	-
15	integer	8-
16	long	16-
17	unsigned	8-
18	long-unsigned	16-
19	compact array	
20	lo ng 64	64-
21	tong64-unsigned	64-
22	enum	
23	float32	4- —
24	float64	8- —
25	date-time	12
26	dale	5- « »
27	time	4- « »

```
7.2.2
                                           octet-string (
                                                          «9»)
                                                                      5.
OCTET STRING (S12E(5)>
(
     year highbyte,
     year Lowbyte,
     month,
     dayOfMonth,
     dayOfWeek
)
                                   long-unsigned.
                                                                    0x0000...OxFFFE.
   year —
OxFFFF
                                          unsigned.
                                                                      1...12. OxFD. OxFE, OxFF.
     month —
                             . OxFD —
                                                                 . OxFE —
OxFF —
```

```
1...31. OxFD.
     dayOfMonth —
                                                       unsigned.
OxFE. OxFF. OxFD —
                                                . OxFE —
                                                                                  . OxFF —
                                                                                    1... 7. OxFF —
     dayOfWeek -
                                                      unsigned.
                                                                          4
     7.2.3
                                              octet-string (
                                                              «9»)
                                                  :
OCTET STRING (S1ZE(4)>
     hour,
     minute,
     second,
     hundredths,
)
                                     unsigned.
                                                                  0...23. OxFF —
   hour —
     minute —
                                             unsigned.
                                                                          0...59. OxFF —
     second -
                                              unsigned.
                                                                           0...59. OxFF —
     hundredths -
                                                              unsigned.
                                                                                            0...99,
OxFF —
     7.2.4
                                                     octet-string (
                                                                    «9»)
                                                                                 12
OCTET STRING (S1ZE(12>)
     year highbyte,
     year Lowbyte,
     month,
     dayOfMonth,
     dayOfWeek,
     nour,
     minute,
     second,
     hundredths,
     deviation highbyte,
     deviation lowbyte,
     clock status
)
                                     long-unsigned.
                                                                       0x0000...OxFFFE.
   year —
OxFFFF
     month —
                                               unsigned.
                                                                              1...12. OxFD. OxFE. OxFF.
                               . OxFD —
                                                                     . OxFE —
OxFF —
                               :
     dayOfMonth —
                                                            unsigned.
                                                                                            1...31. OxFD.
                                                                                   . OxFF —
OxFE. OxFF. OxFD —
                                                 . OxFE —
     dayOfWeek -
                                                        unsigned.
                                                                                      1...7. OxFF —
                                         unsigned.
                                                                       0...23. OxFF —
     hour —
                                               unsigned.
                                                                              0...59. OxFF —
     minute -
```

```
unsigned.
                                                                       0...59. OxFF —
     {\sf second} \; - \!\!\!\!\!\!-
     hundredths -
                                                             unsigned.
                                                                                            0...99.
OxFF —
     deviation -
                                                            long.
                                                                                       -720...*720
                                          UTC.
                                                         0x8000
                                                            unsigned.
                                                                        0 —
     clock status -
                                                                             . OxFF —
     7.2.5
             <23» (32-
                                     ):
                              (s).
                                                             ( ).
                                                                             23
                                                                                                (f).
                                  V = (-1)» X 2«-»27 X (1,f); < 256.
             «24» (64-
                                                   ( ).
                         (s).
                                       11
                                                                  52
                                                                                               ( ).
                                  V = (-1)» X 2*-' 23 (1,0; < 1024.
     7.2.6
                                                  «9».
                                                         16
                                                                   «0x01 0x02 0x03 0x04 0x05 0x06
0x07 0x08 0x09
                          0x00 0x0D 0 0 OxOF»
                                                                    : 0x09 0x10 0x01 0x02 0x03 0x04
0x05 0x06 0x07 0x08 0x09
                                        OxOD
                                                   OxOF.
                                  8,
                                         «10».
ASCII.
     7.2.7
                                                        «2».
                                                          (
                                                                                     ),
     7.2.8
                                                              «1».
     7.3
                  (Data) [IC: 1, Ver: 0)
     7.3.1
     7.3).
      7.3 —
                           » (Data)
                                                       09.
   1
   2
```

<sup>1</sup>» . [12].

	» (Register)	3 0		
1		09.		
2		1		
3		2		
1				

7.5 —

	7.5 —	
1		
2		
3		7x24*60*60 0
4		24*60*60
5		60*60
6		60
7		
8	( )	Rad«180ftr
9		-273.15
10	( )	
11		
12		I
13		3
14		3
15		³/(6 *6 )
16		m <sup>j</sup> /(6O*6Oc)
17		m <sup>j</sup> /(24*60«60c)
18		/(24«60«60 )
19		0.001 <sup>3</sup>
20		
21		

22	-		= =
23			/ 2
24			100 000 / 2
25			= =
26			/(60*60 )
27			= /
28	-		-
29			
30	-		= 3600
31			- >(60«60 )
32	-		*(60»60 )
33			
34			=
35			
36			I
37			= = /
38			= /
39			- <sup>2</sup> /
40			=
41			= / *
42			
43			= /
44			= 1/
45	-		1/
46	-		
47			
48	-		² ( 0*60 )
49	-		A*x(60»60 )
50			I
51			= 1/
52			
53	-	-	1/ <sup>2</sup> (60«60 )
54	-	-	1/ <sup>2</sup> (60«60 )
55			1/ 3
56			%

			1
57	-		= 3600
60	-		3600 / <sup>3</sup>
61	)		/ <sup>3</sup>
62			
63			
64			
65			
70	-	1	
71	-		
72			
254			
255		,	

7.3.3 [Extended Register] [IC: 4, Ver: 0]

( 7.6).

7.6 — « »

« » (Extended Regitter)		» 4 0	
1		09.	
2		1	
3		1	
4		1	
5		27	
1			

[13] [14]. 7.3.4 [Demand Register] [IC: 5. Ver: 0]

7.7 — « »

	« » (Demand Register)	« 5	0
N9			
1		09.	

« » (Demand Register)		<sup>3</sup> 5 0	
2		1	
3		1	
4	•	1	
5		2	
6		27	
7		27	
8		06. 32-	
9		18.16-	
1			
2			·

[13] [14]. 7.3.5 [Register Activation) [IC: 6, Ver: 0)

7.8 —

	er Activation) « S 0	
1	09.	
2	01.	
3	01.	
4	09.	
1		
2		
3		

,

[13]. 4.3.6.

,

7.9 —

	« » (ProCle Genetic)	" ?
1		09.
2		01. , 19.
3		01.
4		. 32-
5		1
		01.
7		06. 32-
8		. 32-
1		
2	·	

[13] [14].

7.3.7 [Clock] [IC:8, Ver: 0] ( 8.10)

.

7.10 — « »

	• » {Clock)	• 0	
1		09.	
2		25	
3		16.1 -	
4		17. 8-	
5		25	
		25	
7		15.8-	
8		3.	
9		22.	

	« » (Clock)	«	0
1	1/4		
2			
3			
4			
5			
6			

```
[13].
                                                                           7.3.4:
                                                                                                           -720
      (UTC)
   720
                                                                   7.3.4:
                                                                   7.3.4;
           120
  -120
                                                                                . TRUE —
FALSE —
                                                                          :
        - (0) —
        - (1)—
        • (2) —
                        50
                        60
        • (3) —
                             GPS (GLONASS);
        • (4) —
        • (5) —
                       1/4
                                                                                                      (00.15.30.
45
                                30.
                                                                       30.
                                                                                           5 (
                                                                 (
                                                                         ).
                                     (preset_adjusling_time) -
             7.3.4.
                                                                            -900
                                                                                     900 .
      7.3.8
                                 [Script Table] [IC: 9, Ver: 0] (
                                                                       7.11)
```

7.11 —

	« * (Scrip) Table)	* 0	
1		09.	
2		01.	
1	( )		

7.3.9 [Shedule] [IC: 10, Ver: 0] ( 7.12)

•

7.11 7.13.

7.12 —

		10 0	
1		09.	
2		01.	
1	/ ( )		
2	( )		
3	( )		

[13].
7.3.10 [Special Day Table) [IC: 11. Ver: 0] ( 7.13)

**»** 

7.13 —

	« » (Special Day Table)	« 11	0
1		09.	
2		01.	
1	( )		
2	( )		

[13]. 7.3.11 [Activity Calendar] [IC: 20. Ver: 0] ( 7.14)

7.14 —

	« » (Activity Calendar)	«20	0
1		09.	
2		09.	
3		01.	
4		01.	
5		01.	
6		09.	
7		01.	
8		01.	
9		01.	
10		25	
1	0		

(13]. 7.3.12 [Association LN] [IC: 15, Ver: 1]

•

, , \*

7.15.

7.15 —

	« » (Association LN)			15 1
1			09.	
2			01.	
3			02.	
4			02.	
5	xDLMS_contexI_mfo		02.	
			09.	
7	( )		09.	
8				
9	«	»	09.	
1				
2				
3				
4				

```
[13].
      • 0.0.40.0.0.255 —
      • 0.0.40.0.1.255 —
                                                                     »:
      · 0.0.40.0.2.255 —
      · 0.0.40.0.3.255 —
      - classjd: long-unsigned (
                                                                              «18»);
      - version: unsigned (
                                           «17»);
      - logical_name: octet-string (
                                                             . 6-
                                                                                 );
      - access_rights; access_right (
      • (0) no_access (
      - (1) read.only (
                                    );
      • (2) write_only (
                                     );
      - (3) read_and_write (
                                            );
      - (4) authenticated_read_onty (
                                                                                );
      « (5) authenticated_write_only (
                                                                                );
      - (6) authenticated_read_and_write (
                                )
        - (0) no.access (
                                     );
        - (1) access (
        * (2) authenticated_access (
      - dient_SAP: integer (
                                                          );
      - server_SAP; long-unsigned (
                                                                                 ).
                                       0
                                            0x7f:
               0x10 —
               0x20 —
               0x30 —
                                       0000
                                                0x3fff.
                                                                        0001
                                                                0x60 0x85 0x74 0x05 0x08 0x01 0x01.
      xDLMS_contexl_info
                                                                                      xDLMS.
      • conformance: 24-
                                                                                 xDLMS:
      - max_receive_pdu_size:
      - max_send_pdu_size;
      - dlms_version_number: unsigned (
      - quatity_of_service: (
                                                                «0»);
      - cypheringjnfo: octet-string (
                                                                                             ).
    0x60 0x85 0x74 0x05 0x08 0x02 0x00
                                                                             . 0x60 0x85 0x74 0x05 0x08 0x02
0x01
                             . 0x60 0x85 0x74 0x05 0x08 0x02 0x02
                      )
              (
      - (0) —
      - (1) —
      - (2) —
```

```
( . ).
                                            . [2].
  7.3.13
                                          (Image Transfer] (IC: 18, Ver: 0] (
                                                                                   7.16)
        2.
        3.
        4.
        5.
                                                                                         );
        6.
        7.
                                     (
                                                                                   ).
    7.16 —
                                » (Image Transfer)
                                                                                 18
1
                                                           09.
                                                           06. 32-
2
                                                           04.
3
                                                           06. 32-
4
                                                           03.
5
6
                                                           22.
7
                                                           01.
```

```
Image Transfer OBIS- 0.0.44.0.0.255. (13).
7.3.14 [IEC Local Port Setup) (IC: 19, Ver: 1)
```

'» .(3].

3

7.17 —

	» (IEC Local Pori Setup)	19	1
1		09.	
2		22.	
3		22.	
4		22.	
5		22.	
6		09.	
7	1 ( 1)	09.	
8	2 ( 2)	09.	
9	3 (W5)	09.	

```
— 0.0.20.0.0.255.
                                       ... );
• (0)
                       (3] (
                                  HDLC [14];
- (1)
• (2)
                                                                              4.
                                                                                                   :
- (0) 300
> (1)600
• (2) 1200
- (3) 2400
• (4) 4800
- (5) 9600
• (6) 19 200
• (7) 38 400
• (8) 57 600
• (9) 115 200
- (0) 20
- (1)200
                     ').
           1
                                   1;
                                   2;
           2
           3
                                  W5.
                                                                                     * ²),
0.0.20.0.1.255 —
                         2;
0.1.20.0.1.255 —
0.2.20.0.1.255 —
   . [3].
<sup>2</sup>) . [3].
```

## 7.3.15 HDLC (IEC HDLC Setup] [IC: 23, Ver: 1] HDLC.

,

7.18 — « HDLC»

	HDLC» (I£C HDLC Setup)	«23 1	
1		09.	
2		22.	
3		17.8-	
4		17.8-	
5		18.16-	
6		18.16-	
7		18.16-	
8		18.16-	
9		18.16-	

[13]. HDLC. 0.0.22.0.0.2S5 — 1; 0.1.22.0.0.255 — 0.2.22.0.0.255 — 0.3.22.0.0.255 — 7.4.14. ) 1 7. ( ) 32 2030 128 ( ), ). 20 6000 25 1000 ( ), 0 120 . «O»

24

, 7.19.

7.19 —

	1-	2-6
NO-Station ( )	0x00	0x0000
	0x01	0x0001
( )	0x02OxOF	0x0002OxOOOF
	0x100x7D	0x00100x3FFD
«CALLING» device (	0 7	0x3FFE
( )	0x7F	0x3FFF

[Push Setup] [IC: 40. Ver: 0] 7.3.16

7.20.

7.20 —

	«	• 40	0
1		09.	
2		01.	
3		02.	
4		01.	
5		18.16-	
6		17.8-	
7		18.16-	
1	( )		

[13].

0.0.25.9.0.255.

);

( ).

);

```
);
           (
- (0) TCP;
• (1)UDP;
• (2) FTP;
- (3) SMTP:
• (4) SMS:
- (5) HDLC;
- (6) M-Bus:
- (7)ZigBee:
• (200...255) —
                                                 , e-mail. IP-
• (0) A-XDR —
- (1)XML —
- (128...255) —
                      «25»,
                           «25».
                                                             (
                                                [13].
7.3.17
                                      [Disconnect Control] [IC: 70, Ver: 0]
                                       7.22.
             (
                                  );
                                  );
                                                                                         ).
                                                                              7.21.
  7.21 —
```

			«	» «	-
	»				
b	»		«	» «	-
		«		» «	»
d		«	» «		<b>»</b>
		«		» «	<b>»</b>
f		<b>«</b>	» «		<b>»</b>

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9	«	»	• «			»
h	«			»	«	»

7.22 —

	« » (Oieconned Control)	70	0
1		09.	
2		3.	
3		22.	
4		22.	
1			
2			

•

0.0.96.3.10.255.

— TRUE (1) — . FALSE (0) — .

• (0) ;

- (1) ;

• (2)

7.23.

7.23 —

enum,	«•>	(1	<0	<9)	1)	(4)	()	0»
(0)	-	-	-	_	-	-	-	_
(1)	х	х	х	х	_	х	x	_
(2)	х	х	х	х	х	-	х	-
(3)	х	х	-	х	-	х	х	-
)	х	х	-	х	х	•	х	_
(5)	х	х	х	х	_	х	х	х
(6)	х	х	-	х	_	х	х	х

«Disconnect Control»

7.3.18 [Security Setup] [IC: 64, Ver: 1]

«

7.24.

7.24 —

	64	1
N4		
1	09.	
2	17.	
3	22.	
4	09.	
5	09.	
6	01.	

0.0.43.0.0.255 no 0.0.43.0.N.255. • (0) «0»; • (1) «0»; • (2) • (3) • (4) • (5) • (6) - (7) • (0) AES-GSM-128 - (1) AES-GSM-128 . V.44 « (2) AES-GSM-256 . V.44 • (3) KUZN-CTR-CMAC (4) VKO-256-GOST34102018-256-KUZN-CTR-CMAC GOST34112018-256 , «3». [15]. 8 X.509-3, . 2 -); . 2 — TLS. 3 — );

[13].

7.3.19 (Limiter) [IC: 71, Ver: 0]

«

»

7.25.

7.25 —

	« » (UmilerI	71	0
1		09.	
2		02.	
3			
4			
5			
6		06. 32-	
7		06. 32-	
8		02.	
9		01.	_
10		03.	_
11		02.	

,

•

7.26 **—** 

	« » (Register Mondor)	21 0		
1		09.		
2		01.		
3		02.		
4		01.		

7.3.21 (Single Action Shedule] (IC: 22, Ver: 0]

« » « »,

,

7.27 —

	« » (Single Action Shedule)	«22	0
1		09.	

	« » (Single Acbon Shedule)	22	0
2		02.	
3		22.	
4		02.	

7.28.

7.28 —

	OBIS-	• 09	OBIS-	22
	1.255		15.0.0.255	
	0.106.255		15.0.1.255	
	0.107.255		15.0.2.255	
	010.0.103.255		15.0.3.255	
	0.108.255		15.0.4.255	
-	0.0.10.0.128.255		0.0.15.0.128.255	

```
(
                                                7.27);
     - (0) —

• (1) —

( .7.3)

- (2) —
                                                                      » = 1.
                                                                               1.
      • (3) —
                                                                               1.
      • (4)—
                                                                               1.
      • (5) —
                                                                               1.
                                                                 (OBIS)
      7.4
      7.4.1
                                                                             6-
                                                                    ).
A.B.C.D.E.F (
                                                                     ):
      7.4.2
```

'» . (8].

31

7.29.

7.29 — « »

• »			
0	(	)	
1			
2. 3			
4			
5.6			
7			
8			
9			
15	( )		
16255			

7.4.3 < » ( = 0)

7.30.

7.30 — « »

« »	
0	
1	« »
2	« »
10	« »
11	« »
13	« »
14	« »
17	« »
20	« »
21	«Readout»
22	« HDLC»
40	« »
42	
44	« »
94	, (D = 7)
96	
97	
98	
99	
127	

«»					
128163					
164199, 240	,		(	)	
_	= 96	D = 50			

7.4.4 « » ( » = 1)

7.31.

7.31 — « »

	7.31 —		W 2						
	«	»							
_	_	L2	L3						
	(	0							
1	21	41	61	(QI+QIV)					
2	22	42	62	(QU+QIII)					
3	23	43	63	(QI+QII)					
4	24	44	64	(QIII+QIV)					
5	25	45	65	QI					
6	26	46	66	Oil					
7	27	47	67	QIII					
8	28	48	68	QIV					
9	29	49	69	(OI+QIV)					
10	30	50	70	(QII+QIII)					
11	31	51	71	: = 11 — , —					
12	32	52	72	: = 12 —					
13	33	53	73	(cos q>)					
14	34	54	74						
15	35	55	75	(abs(QI+QIV)+ abs(QiI+OIII))					
16	36	56	76	(abs(QI*QIV)-abs(Q1I+QIII))					
17	37	57	77	OI					
18	38	58	78	QII					
19	39	59	79	QIII					
20	40	60	80	QIV					
	8	:1							
	8	32		( )					
	8	13							
			·						

	«	»		
ILi	L1	L2	L3	
84	85	86	87	(cos < )
	8	8		( 2 )
	8	9		( 2 )
	90			
	9	1		
	92			
	93			,
	9	4		, ( )
	9	6		
	9	7		
	9	8		
	9	9		
	100.	127		
	128183			
	164199. 240			,

7.32 — <Db

D»				
0		(	)	
1	1(	)		
2	1(	)		
3	1 (	)		
4	1 (	)		
5	1(	)		
6	1(	)		
7				
8				
9				
10				
11	2			_
12	2			

«D»	
	_
13	2
14	2
15	2
16	2
17	1
18	2
19	1
20	2
21	3
22	3
23	3
24	3
25	3
26	3
27	5
28	6
29	1
30	2
31	( )
32	
33	
34	
35	( )
36	
37	
38	
39	
40	
41	
42	
43	
44	
L	

«D»	
45	
46	
51	1
52	2
53	1
54	2
55	
58	
128	
129	
130	
131	
132	. %
133	
134163	
164254	,
L	

```
7.4.6
                                                              = (1...10.15...30. 35...50. 55...70. 75...80),
« ». « » « ».
D = (8...10. 17...20)
                                                                             «0» —
                       64
                                                                      » « ». «
                                                                                            ». « -
                 » As1.Cs (11, 31. 51. 71. 12. 32. 52. 72. 90. 91. 92. 15. 35. 55. 75)
                                                                                        D = (7. 24)
                                                                «0» —
                                      . 124 — THD —
1...120 —
                                                                                          (
                      ). 125 — «Total Demand Distortion» —
                       . 126 —
                                                                                   . 127 —
                                                                              (=1.=81.D-7).
                      « »
                                       UNIPEDE = 1, = (12. 32.52, 72), D = 32
                 (-1. = 83).
     7.4.7
                          «F»
            «F»
                                                         (
                                                                  )
         «255».
     100
                       12,
                                          «F»
```

```
7.4.8
                                                             .7.
     8
    8.1
                                                                            APDU (Application
Layer Protocol Data Unit).
                           APDU
  );
                                          [13].
    8.1.1 APDU
         AARQ 0x60;
                                                                                           )
 1 09 06 07 60 85 74 05 08 01 01;
                           (ACSE>requirements) 8 02 07 80:
                             ( «8 ».
                                                            : 01 00 00 00 06 5F 1F 04 00 00 7
1F 04
                                      , 00 00 00 —
                                                             . 06 5F 1F —
                                                                                       «31»,
    00 00 7 1F
                                                                   . 04 —
                          APDU
04
                                      (1200 )].
    8.1.2 APDU
                      (AARE)
      AARE 0x61;
                                                                                          )
 1 09 06 07 60 8574 05 08 01 01;
                                                       03.
                                                                    02. 2
                                                                            );
                                                                       1.3);
                                                         05.
                                                                           07 80);
                                               «88».
                                                         2
                                          )(
                                                        ) (
                                                             «89».
                                                                       07.
                                                                                       60 85
74 05 08 02 05);
                                                    ) ( « ».
                                                                    18.
      );
                                                      : 04 0 08 00 06 5F 1F 04 00 00 50 1F 01 F4
                                   ». 16
00 07.
       04 —
                                  . 08 00 —
                                                     . 06 5F1F — «31», 00
                                                . 04 —
00 501F
                                                                      . 01 F4 —
     APDU
                  (500 ). 00 07 —
                                                        LN).
                                                    8.1.
                     AARQ AARE
      8.1—
                         AARQ AARE
                                          601DA1 09 06 07 60 85 74 05 0801 01
 AARQ
                                          OE01 00 00 00 06 5F1F040000 7E1F04BQ
```

AARQ	,	60 36
AARQ	,	60 36 1 09 06 07 60 85 74 05 08 01 01 8 02 07 80 8 07 60 85 74 05 08 02 05 AC 0 80 10 16 15 14 13 12 11 10 9 8 7 5 4 2 1 BE 10 04 0 01 00 00 00 06 5F 1F 04 00 00 7 04
AARE	, , -	61 29
AARE	, , , , , ( 1)	61 29 1 09 06 07 60 85 74 05 08 01 01 2 03 02 01 01 05 1 03 02 01 02 BE 10 04 0 08 00 06 5F 1F 04 00 00 50 1F01 F4 00 07 61 29 1 09 06 07 60 85 74 05 08 01 02 2 03 02 01 01 05 1 03 02 01 00 BE 10 04 08 00 06 5F 1F 04 00 00 50 1F01 F4 00 07
AARE	, , , , , , , , , , , , , , , , , , ,	61 1FA1 09 06 07 60 85 74 05 08 01 01 2 03 02 01 01 05 1 03 02 01 01 BE 06 04 04 01 0601
AARE	- - ( « »	61 42 1 09 06 07 60 85 74 05 08 01 01 2 03 02 01 00 05 1 03 02 01 88 02 07 80 89 07 60 85 74 05 08 02 05 0 80 08 50 36 77 52 4 32 31 46 BE 10 04 08 00 06 5F 1F 04 00 00 50 1F 01 F4 00 07

8.1.3 , 8.2.

8.2 —

		Ter(d)	)}	
AARQ		96	60	
AARE	AARO	97	61	
GET — request		192		
SET — request		193	1	
Event-notification — request		194	2	
Action — request		195		
GET — response		196	4	
SET — response		197	5	
Action — response		199	7	
GLO-GET — request		200	8	
GLO-SET — request		201	9	

	Ter{d>	Ter (h)	
GLO-Event-notification — request	202		
GLO-Action — request	203		
GLO-GET — response	204		
GLO-SET — response	205	CD	
GLO-Action — response	207	CF	

```
8.1.4
                                                         {0 —
                                                                          . 1 —
                                                                                      .3 — -
. .).
8.1.5
                                                      8
                                                                                  :
     0...3 —
      4.5 —
     6 —
                         (0 —
                                                       );
9
                               <sup>11</sup> (
                                        )
9.1
```

. IEC 81107

9.1.

9.1—

			,	
( )		/?{DA)! CR LF	300	7E1
		/XXXZ\2Id CR LF	300	7E1
		ACK2Z2CR LF	300	7E1
		ACK 2 Z 2 CR LF	z	7E1
	HDLC	HDLC	z	8N1
1 DA — 2 CR — 3 XXX — 4 Z — 5 Id —		), 0x0D. LF — , 3 .		-
6 —	,	0x06.		

'» .(3].

```
HDLC1*
     9.2
     HDLC (High-Level Data Link Control) —
       (SDLC. LAP. LAPB. LAPD, LAPX LLC).
     - LLC (Logical Link Control) —
     - MAC (Media Access Control) —
                                         UI-
     1)
                                             (LDS).
                              . LDS
                                                             (NDM)
                                                                                  (ADM).
                          (NDM)
(ADM),
                                  (IS).
     2)
     3)
                                         (ITS).
                                  (NRM — Normal Response Mode)
                                   (ARM — Asynchronous Response Mode)
                                                    - Asynchronous Balanse Mode)
                                          (UN — Unbalanced Normal)
                                     (UA— Unbalanced Asynchronous)
          . [10].
```

				(E	3A -	– Bala	anse A	synchronous	s)		-
											-
( )	,						(	).			
9.3	HDI	_C						HDLC	•		
-							(	(UN			
-		UI-					`	,	,		
9.4	LLC										
	LLC	ı	(	):			r				
				0 7			0x00				
•	ĸ		» -					: «		» = 0	7, -
	•		3:								
Flag	Format	DA	١	SA		Conti	rol	нсѕ	Inform.	FCS	Flag
8	16					8		16		16	8
Flag —	- 0x7 «Format» —				,	,	(	).		;	
15   14	13 1	2	11	10J <sub>9</sub>		8	<u>7</u>	1 <u>6</u> 1 <u>5</u>	41	<u>3</u> *	0
	= 3		S								
1		0	1		<u>1</u>	1 1	<u>1 1</u>	<u>1</u>		1111	
S.	. 8		«1».		s				«O».		
DA. SA	<b>A</b> —				,			. 8			4
			1 4	, 4 .			,	9.2.	•		1
9.2 —	_										
0x00											
0x01											
0x10											
0x20											
0x30		$\perp$									

1. 2 0x00 0x7F. 0x00 0x3FFF. 9.3. 9.3— HDLC HDLC No-station ( ) 0x00 0x0000 0x00 0x0000 0x01 0x0001 0x02..0x0F 0x0002..0x0D0F OxOt.OxOF OxOt.OxOOOF 0 10..0 7 0x0010..0x3FFE 0x00W..0x3FFD 0x10..0x7D Calling ( 0 7 0x3FFE **Broadcast (all-stations)** 0x7F Ox3FFF 0x7F Ox3FFF «No-station» «Broadcasting». «Broadcasting»; «No-station» «Broadcasting» P/F «No-station» ; «Calling» 9.5 **HDLC** [ (S). (I), (U)]. (Control) 9.4 — 6|7| 0 N(S) P/F I( ) N(R) RR -0 P/F N(R) s 0 RNR — 0 P/F N(R)

1	1	3	4	5		7			
1	0	0	1	P/F	N(R)			REJ —	s
1	0	1	1	P/F	N(R)			SRE J —	
1	1	0	0	P/F	0	0	0	UI —	
1	1	0	0		0	0	1	SNRM —	
1	1	0	0		0	1	0	DISC —	
1	1	0	0		1	0	0	UP —	
1	1	0	0	F	1	1	0	UA —	
1	1	0	0	P/F	1	1	1	TEST —	
1	1	1	0	P/F	0	0	0	SIM —	
1	1	1	0	F	0	0	1	FRMR —	,
1	1	1	1	F	0	0	0	<b>DM</b> — « »	,
1	1	1	1		0	0	1	RSET —	
1	1	1	1		0	1	0	SARME —	
1	1	1	1		0	1	1	SNRME —	
1	1	1	1		1	0	0	SABM —	
1	1	1	1	P/F	1	0	1	XID —	
1	1	1	1		1	1	0	SABME —	

```
N(S)
                                                           N(R) —
P/F —
     HCS —
                                «Format». «DA». «SA» «Control».
     FCS —
                            (I-frame)
                                                                    (N(S)]
                                                                                      (N(R)]
                                         » (S-frame «RR»)
                                                               N(R) — 1
                                                  «RNR».
                                              » (S-frame «RNR»)
N(R)
                               (U-frame)
                                                     » (SNRM)
```

```
«Control*
                            «Control»
       «NRM».
«UA*
                                        (
                            » (DISC)
                      » (UA) —
                                                                       «SNRM»
                                                                                  «DISK».
                   » (DM) —
                      » (FRMR) —
                            » (UI) —
                                                                              HDLC
                                                                                                 [13].
     9.6
                                      DLMS/COSEM
                                                        IP-
                                                                               IP-
                 UDP TCP
7.3 7.4 [14]
                                                                         «wrapper».
     9.7
                                                                                       Data Notification.
                                           UDP (TCP) ( . 9.6).
HDLC
                                 Data Notification.
                 40 Push setup OBIS-
                                             0.0.25.9.0.255 ( . 4.4.8.2 [14]).
                                                                3. Push Setup)
                                                       (
                                                                  : HDLC
                                                                             UDP (TCP).
                                                                            2. Push Setup)
                                                                   (
         9.5.
       9.5 —
                                                                     OBIS-«aa
     1
                                                               0.0.97.98.0.255
                                                                                       1
                                                                                                 2
```

4, Push Setup).

(

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```
9.8
                                  HCS FCS
                                       (HCS) (FCS)
  : 1 12 5 + 1.
   10
   10.1
   10.1.1
                                 );
                                                        );
                                 );
                                                                        );
   ,
).
   10.2
                                                                           ( )
                10.1.
     10.1 —
1)
        ( )
2)
        (
             )
3)
             )
4)
```

10.	•								
5)									,
3,									
									,
6)								,	
1					,				»
(	(	),			)				
( ) (16).									
[15].									DLMS
11			,				[1]		
[8].		11.1.			,				OBIS*
11.1 —									
OBIS-									
1.0.128.7.0.255				(tg	)	-			
1.0.129.7.0.255				(tg	)	•			
1.0.130.7.0.255				(tg	)	-			
1.0.131.7.0.255				(tg	)				
1.0.131.35.0.255				(tg	)				
1.0.131.44.0.255				(tg	)		•		
1.0.132.7.0.255									
1.0.133.7.0.255					•				
1.0.134.7.0.255									
1.0.135.7.0.255									
1.0.136.7.0.255									
1.0.131.27.0.255				(tg	).				-
1.0.131.6.128.255				(tg	).				-
1.0.132.7.200.255									
1.0.133.7.200.255									
1.0.133.35.0.255									

OBIS-km								
1.0.133.44.0.255								
1.0.134.7.200.255								-
1.0.137.3.128.255								-
1.0.137.6.128.255								-
1.0.15.3.128.255								
1.0.15.6.128.255								-
1.0.15.6.129.255								-
1.0.15.6.130.255								-
1.0.9.3.128.255								
1.0.9.6.128.255								
1.0.142.7.0.255								
1.0.142.7.200.255								
1.0.143.7.0.255								
1.0.143.7.200.255								
1.0.144.7.0.255								
1.0.144.7.200.255								
1.0.145.7.0.255								
1.0.146.7.0.255								
1.0.12.128.0.255		, %(		)				
1.0.12.129.0.255	 	 , %(		)				
1.0.12.130.0.255	 	 , %	(		)	)		
1.0.12.128.1.255	)			10		,	% (	
1.0.12.128.2.255	)			10		,	% (	
1.0.12.128.3.255	)			10		,	% (	
1.0.12.129.1.255	)			10		,	% (	
1.0.12.129.2.255	)			10		,	% (	

OBIS-			
1.0.12.129.3.255	)	10	, %(
1.0.32.128.0.255		. %(	)
1.0.32.129.0.255		% (	)
1.0.52.128.0.255		. %(	)
1.0.52.129.0.255		. %(	)
1.0.72.128.0.255		. %(	)
1.0.72.129.0.255		. %(	)
1.0.132.130.0.255	)		, %( -
1.0.14.130.0.255			
1.0.147.133.0.255			
1.0.148.36.0.255			
1.0.91.7.131.255			
1.0.91.7.132.255	. %		
1.0.91.35.132.255	. %		
1.0.91.44.132.255	. %		·

```
1)
                                                 1.0.0.8.6.255
                                                                   30
                                                                                                  D-
        60
                                             (OBIS- 0.0.128.1.0.255)
                                                (OBIS- 0.0.128.2.0.255)
)
Oxff.
                                                                                                0...23.
                                                                 » (
                                                                                            ).
                                               Oxff.
                                         Ps = | | + | ] + | |:
                                        Qs = |Qa| + |Qb] + |Qc|.
                        (
                                          Pi«X|Ps|'1/(N-60),
   N -
                                         » , 0.2 .
                                         Pi = X|Ps| 0,2/(N 60).
   N —
```

2)

1.0.131.7.0.255	
	tg() tg()= Qs/Ps.
OBIS- 1.0.131.7.	0.255.
(1.0.131.35.	(1.0.131.7.0.255) - 0.255). (1.0.131.44.0.255). « » (99.98.8.255).
1.0.131.27.0.255	•
,	:
	Pi = IPs 1/(N-60).
N —	•
,	
	Qi = XQsW(N-60).
N —	•
	tg (< ), , , tg (< ) = Qi/Pi; OBIS- 1.0.131.27.0.255.
(1.0.131.35.0	(1.0.131.27.0.255) - «
	» (0.0.99.98.12.255).
1.0.131.6.128.255	-
	1.0.131.27.0.255 «
1.0.131.6.128.255	» ( ). OBIS-
1.0.137.3.128.255	
1.0.137.6.128.255	
	-
	, ;
	Qi = IQsV(N-60),
N —	1.0.137.3.128.255
1.0.15.3.128.255	-
1.0.15.6.128.255	

```
Pi = IPs 1/(N-60),
  N -
                                1.0.15.3.128.255
                                                                1.0.15.6.128.255
                                                       (
                                                           )
1.0.9.3.128.255
1.0.9.6.128.255
                                         Si = XSs - 1/(N-60).
  N —
                               1.0.9.3.128.255
                                                             1.0.9.6.128.255
                                                   ( )
1.0.15.6.129.255
                                                                . OBIS- 1.0.15.16.0.255.
                                                                                                 )
                                         . OBIS- 1.0.15.6.129.255.
      . OBIS- 1.0.15.6.129.255.
1.0.15.6.130.255
                                  . OBIS- 1.0.15.16.1.255.
                                                                    (OBIS- 0.0.128.1.0.255)
                              (OBIS- 0.0.128.2.0.255).
                        ( )
                                                                     . OBIS- 1.0.15.6.130.255.
                                         . OBIS- 1.0.15.6.130.255.
1.0.15.16.0.255
           . OBIS- 1.0.15.16.0.255.
1.0.15.16.1.255
```

```
, OBIS- 1.0.15.16.1.255.
                                                                           (OBIS- 0.0.128.1.0.255)
                                     (OBIS- 0.0.128.2.0.255).
                                                                   (OBIS- 1.0.147.133.0.255)
                                                                      10 %
                  (1.0.0.6.4.255)
                                                                      10
      30804.4.30.
                                                (OBIS- 1.0.148.36.0.255)
                                                                                       20 %
                                          (1.0.0.6.4.255).
                                                                                                30804.4.30.
                                       . %
I 1.0.91.7.132.255 I
                                  %
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    Im —
                                1.
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  1.0.131.44.0.255
  1.0.91.44.132.255
                                            , %
  1.0.133.44.0.255
                                                                                             (8].
         11.2.
        11.2 —
       OBI3-KOA
 0.0.94.7.1.255
 1.0.94.7.0.255
                                                                                 )
 1.0.94.7.1.255
 1.0.94.7.2.255
 1.0.94.7.3.255
 1.0.94.7.4.255
 1.0.94.7.5.255
  1.0.94.7.6.255
```

12.1. ( ) -

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12.1 —

HDLC	
7 008 0221 21 53 0917 7	DISC -
7 008 21 02 21 1FA0D9 7E	«DM» (
7 008 0221 21 93 05D1 7	SNRM
7 008 21 0221 73 70 7	UA
7EA01F0221 21 93 9 55 8180 12 05 01 80 06 01 80 07 04 00000007 08 04 00000007 7	SNRM -
7 01F 21 0221 73 9 55 8180 12 05 01 80 06 01 80 07 04 00000001 08 04 00000001 7	UA -
7 02 0221 21 10 172 6 60060 1D 109060760857405080200 10040 01000000065F1F 0400001010 FFFF F8B5 7	AARQ
7 038 21 0221 30 84D4 6 700 61 29 109060760857405080200 203020100 305 103020100 BE 10 04 0 0800 065F1F 04 00001010 0400 0007 36E3 7	AARE 1
7 01 0221 21 34 78 2 6 600 001 1 000F 0000280000FF 0100 F979 7	«GET_requesi» -
7 01921 0221 7247DE 6 700 401 100 0906 0000280000FF 66 7	«gel_response» — 6 «00 00 28 0000 FF»

( ). «20». 01.10. «Reader».

12.2 —

HDLC			
7 008 0221 41 93 50 4 7		SNRM	
7 008 41 0221 73 2 9 7		UA	
7 043 0221 41 10 0D84 6 600 60 34 109060760857405080101 8 0207808 0760857405080201 088006 526561646572 BE10040 01000000 065F1F 040000101 FFFF 2815 7	1-	AARQ	«Reader»
7 038 41 0221 30 604D 6 700 61 29 109060760857405080101 203020100 305 103020100 10040 0800 065F1F040000101C0400 0007 0694 7	1-	AARE	-
7 01 022141 32 1 2 6 600 001 1 000F 0000280001FF 02 00 9153 7		«get.requesl»	-

	HOLC	
	7 88 41 0221 F4 F83D 6 700 401 1 00 01 04 02 04 12 00 08 11 00 0906 0000010000FF 02 02 01 0902 03 0F01 1601000203 0F02 1601000203 0F03 1601000203 0F04 1601000203 0F05 1601000203 0F06 16010002030 F07 1601000203 0F08 1601000203 0F09 1601000100020412000F1100 0906 0000280000FF 02 02 01 08 02 03 0F01 1601000203 0F02 1601000203 752D 7	«get_with_block_response» : 88 -
	7 008 0221 41 71 1915 7	·
	7 88 41 0221 F6 1 0F 031601000203 0F04 1601000203 0F05 1601000203 0F06 1600000203 0F07 1600000203 0F08 1600000100020412000F1100 0906 0000280001FF 02 02 010802030F0116010002030F021601000203 0F0316010002030 F0416010002030F0516010002030F0616000002030F 0716000002030F08160000010002041200011100 0906 D505 7	-
	7 008 0221 41 71 1915 7	
•		
	7 <u>024</u> 41 0221 F8 05 OQ002AOOOOFF 0202 01020203 0F01 1601000203 0F02 1601000100 1 9 7	

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12.3 —

HOLC	
7 008 0221 41 93 50 4 7	SNRM
7 008 41 0221 73 2 9 7	UA
7 043 0221 41 10 0D84 6 600 60 36 109060760857405080101 8 020780 8 0760857405080202 128010 4 35366956616759 000000000000000 BE10040E01000000 065F1F 040000101 FFFF 218 7	1- AARQ CtoS «K56«VagY».
7 051 41 0221 73 2 9 6 700 61 42 1 090607 60 857405 08 01 01 2 03 02 01 00 05 1 03 02 01 88 0207808907 60 85 74 05 08 02 05 12 80 10 50 36 77 52 4 32 31 46 00 00 00 00 00 00 00 00 BE 10 04 0 08 00 06 5F 1F 04 00 00 50 1F 01 F4 00 07 0 4 7	1- AARE StoC «P6wRJ21F».
7 02 0221 41 74 2DC7 6 600 301 1 000F 0000280001FF 01 09 11 10 00000001 1A52FE7D D3E72748973C1E28 EFB4 7	Action-request-normal OOOF 0.0.40.0.1.25501 f(SloC) 10 00000001 1A52 FE7D D3E727 48973C1E28
7 02 41 0221 75 2 7 6 700 701 1 000F 0000280001FF 01 09 11 1001234567FE1466AF B3DBCD4F93 89 2 7 EFB7 7	Actkxi-respooce-normal OOOF 0.0.40.0.1.25501 f(CtoS) 100123 4567FE1466AF B3DBCD4F93 89E2B7

13.1

13.1 —

Nt				*
1		7	0.0.94.7.1.255	1
2		7	0.0.94.7.1.255	2
	;	7	0.0.94.7.1.255	3
		1	0.0.96.1.0.255	2
		1	0.0.96.1.1.255	2
		1	0.0.96.1.2.255	2
	, -	1	0.0.96.1.8.255	2
		1	0.0.96.1.3.255	2
		1	0.0.96.1.4.255	2
		1	0.0.96.1.6.255	2
	( )*	1	0.0.96.1.9.255	2
3	*	1	0.0.96.1.128.255	2
		1	1.0.0.4.2.255	2
		1	1.0.0.4.3.255	2
	( 64 )	1	0.0.96.1.10.255	2
		3	1.0.0.6.0.255	2
	( )	3	1.0.0.6.1.255	2
		3	1.0.0.6.2.255	2
		3	1.0.0.6.3.255	2
		3	1.0.0.6.4.255	2
		1	1.0.0.3.3.255	2
		1	1.0.0.3.4.255	2
4	(0)	7	0.0.94.7.1.255	4
5	( ,0)	7	0.0.94.7.1.255	5
	( .0)	7	0.0.94.7.1.255	6
7	(0)	7	0.0.94.7.1.255	7
&	(1)	7	0.0.94.7.1.255	8

13.1.2

13.2.

01.10. 12345678.

13.2 —

HOLC	
7 008 0221 41 93 50 4 7	SNRM
7 008 41 0221 73 2 9 7	UA
7 01 0221 41 12 1983 6 600 001 1 0001 0000600100FF 0200 879 7	Get-request-normai 0001 0.0.96.1.0.255 02
7 019 41 0221 50 345 6 700 401 1 00 05 00BC614ED497 7	Get-response-normal «12345678»
7 01 0221 41 34 2DC7 6 600 001 1 0001 0000600101FF 0200 EFB4 7	Get-request-normai 0001 0.0.96.1.1.255 02
7 01941 0221 94 9 5 6 700 401 100 0909 0 8 3438392 3338 D0D4 7	Get-response-normal « 489.38»
	Get-request-normal 0001 0.0.96.1.2.255 02
	Get-response-normal

13.2

: 1.0.21.7.0.255. : 3.

N91.

[GetRequestNormal]:

01 02 21 61 54 18 87 6 6 00 0 01 81 00 03 01 00 15 07 00 FF01 OOBF 7 7

7 19 61 02 21 74 C6AD 6 7 00 4 01 81 00 09 06 01 00 15 07 00 FF 9 70 7

[GetRequestNormal]:

7 0 1 02 21 61 76 08 85 6 6 00 0 01 81 00 03 01 00 15 07 00 FF 02 00 D7 9D7E

7 16 61 02 21 96 26 03 6 7 00 4 01 81 00 05 00 00 00 00 7 2 7

:3.

[GetRequestNormal]:

1 02 21 61 98 78 8 6 6 00 01 81 00 03 01 00 15 07 00 FF 03 00 OF 84 7

7 17 61 02 21 8 1 6 7 00 4 01 81 00 02 02 OF FE 16 1 12 7 7

13.3

[SetRequestNormal]:

28 02 21 61 54 41 45 6 6 00 1 01 81 00 08 00 00 01 00 00 FF 02 00 09 07 1F FF 08 2 26 01 00 00 00 F6 6D 7

7 11 61 02 21 74 6 F7 6 7 00 5 01 81 00 36 CF 7

13.4

[1.0.98.1.0.255]. [ 3 5 ].

[GetRequestNormal]:

2D 02 21 61 54 15 63 6 6 00 01 81 0007 010062000FF 02 01 02 02 04 06 00 00 00 03 06 7 00 00 00 05 12 00 01 12 00 00 7

Ns 3:

7 08 02 21 61 71 7F 53 7

Ns 4:

7 0 08 02 21 61 91 71 4 7

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[1.0.98.1.0.255]. [ 09.12.2014 01.02,2015].

[GetRequestNormal]:

7 4 03 61 54 78 23 6 6 00 01 81 00 07 01 00 62 01 00 FF 02 01 01 02 04 02 04 12 00 08 09 06 00 00 01 00 00 FF OF 02 12 00 00 09 07 DE 09 02 00 00 0FF 00 00 00 09 07 DF 02 01 00 00 00 FF 00 00 00 01 00 92 49 7

7 2 17 61 03 74 1 7 6 7 00 4 02 81 00 00 00 00 01 00 82 01 FF 01 03 02 07 DF0C 09 0 03 0 06 0 FF 00 7800 05 00 00 27 0915 00 00 00 00 00 04 93 06 00 04 93 1 060004 93 2 0600 06 00 04 93 4 06 00 04 93 5 06 00 04 93 6 00 04 93 7 06 00 04 93 8 15 00 00 00 00 00 04 8AF1 15 00 00 00 00 00 04 BAF2 15 00 00 00 00 04 2 00 06 00 04 2 01 06 00 04 2 02 06 00 04 2 03 06 00 04 2 04 06 00 04 2 05 06 00 04 2 06 06 00 04 2 07 06 00 04 2 08 06 00 00 75 30 09 06 OB FF 00 78 00 06 00 00 75 31 09 04 03 06 OB FF 00 78 00 06 00 00 07 D2 04 03 07 D2 04 03 0 06 OB FF 00 78 00 0600 00 75 33 09 07 D2 04 03 0 06 OB FF 00 78 75 32 09 07 D2 00 06 00 00 75 34 09 07 D2 04 03 06 OB FF 00 78 00 06 00 00 75 35 09 07 D2 04 03 06 OB FF 00 78 00 06 00 00 75 37 09 OB FF 00 78 00 00 00 75 36 09 07 D2 04 03 04 03 0 06 OB FF 00 78 00 06 00 00 7D 00 09 04 03 06 OB FF 00 78 00 06 00 00 75 38 09 07 D2 07 D2 04 03 OB FF 00 78 00 00 00 7D 01 09 07 D2 04 03 06 OB FF 00 78 00 06 00 00 7D 02 09 07 D2 04 03 06 OB FF 00 78 00 00 00 7D 03 09 07 D2 04 03 0 06 OB FF 00 78 00 06 00 00 7D 04 09 07 D2 04 03 06 OB FF 00 78 00 06 00 00 7D 05 09 07 D2 04 03 04 03 0 06 OB FF 00 78 00 06 00 00 7D 07 09 06 OB FF 00 78 00 00 00 7D 06 09 07 D2 07 D2 06 OB FF 00 78 00 06 00 00 7D 08 09 04 03 07 D2 04 03 06 OB FF 00 78 00 02 DF 01 16 03 06 OB FF 00 78 00 05 00 00 27 15 00 00 00 00 00 06 1 80 96 4 7

[GetRequestNext] 1:

7 0130361 768746 6 00 02 81 00 00 01 73 7F 7

:

7 2 15 61 03 96 8 1 6 7 00 4 02 81 00 00 00 00 02 00 82 01 FD 00 06 1 81 06 00 06 1 82 06 00 06 1 83 06 00 06 1 84 06 00 06 1 85 06 00 06 1 86 06 00 06 1 87 06 00 06 1 88 15 00 00 00 00 00 06 41 91 15 00 00 00 00 00 06 41 92 15 00 00 00 00 00 06 68 06 00 06 68 1 06 00 06 68 2 06 00 06 68 06 00 06 68 4 06 00 06 68 5 06 00 68 6 06 00 06 68 7 06 00 06 68 8 06 00 00 9 40 09 06 OB FF 00 78 00 06 00 00 9 41 09 07 D2 04 03 07 D2 04 03 06 OB FF 00 78 00 06 00 00 9 42 09 07 D2 04 03 06 OB FF 00 78 00 06 00 00 9 43 09 07 D2 04 03 **06 OB FF** 00 78 00 06 00 00 9 44 09 07 D2 04 03 06 OB FF 00 78 00 06 00 00 9 45 09 07 D2 04 03 0 06 OB FF 00 78 00 06 00 00 9 46 09 07 D2 04 03 0 06 OB FF 00 78 00 06 00 00 9 47 09 07 04 03 0 060 FF 00 78 00 06 00 00 9 48 09 07 D2 0C 04 03 0 6 OB FF 00 78 00 06 00 00 4 10 09 04 03 0A06 OB FF 00 78 00 06 00 00 4 11 09 07 D2 04 03 0 06 OB FF 00 78 00 06 00 00 4 12 09 07 D2 04 03 0 06 OB FF 00 78 00 06 00 00 4 13 09 07 D2 04 03 0 06 FF 00 78 00 06 00 00 4 14 09 07 D2 04 03 06 OB FF 00 78 00 06 00 00 4 15 09 07 D2 04 06 OB FF 00 78 00 06 00 00 4 16 09 07 D2 07 D2 04 03 06 OB FF 00 78 00 06 00 00 4 18 09 07 D2 04 03 06 OB FF 00 78 00 02 07 1 22 06 00 07 1 23 06 00 07 1 24 06 00 07 1 25 06 00 07 1 26 68 FC7E

[GetRequestNext] Ne 2:

7 13 03 61 98 F7 48 6 6 00 02 81 00 00 00 02 8 4D 7

61 03 8 44 6 7 00 4 02 81 01 00 00 00 03 00 82 01 00 07 1 27 06 00 07 1 28 15 00 00 00 00 00 07 8 31 15 00 00 00 00 07 8 32 15 00 00 00 00 07 EF 40 06 00 07 EF 41 06 00 07 EF 43 06 00 07 EF 44 06 00 07 EF 45 06 00 07 EF 46 06 00 07 EF 47 06 00 07 EF 46 04 03 06 OB FF 00 78 00 06 00 00 06 00 00 50 09 07 D2 07 D2 04 03 51 09 FF 00 78 00 06 00 00 52 09 07 D2 04 03 06 FF 00 78 00 06 00 00 07 D2 53 09 FF 00 78 00 06 00 00 54 09 07 D2 04 03 0 06 FF 00 78 00 06 00 00 07 D2 FF 00 78 00 06 00 00 56 09 07 D2 04 03 0 06 FF 00 78 00 06 00 00 04 03 0 6 58 09 FF 00 78 00 06 00 00 FF 00 57 09 07 D2 04 03 0 06 07 D2 04 03 06 78 00 06 00 00 20 09 07 D2 04 03 06 FF 00 78 00 06 00 00 21 09 07 D2 04 03 06 FF 00 78 00 06 00 00 22 09 07 D2 04 03 06 FF 00 78 00 06 00 00 23 09 07 D2 04 03 FF 00 78 00 06 00 00 24 09 07 02 04 03 06 FF 00 78 00 06 00 00 06 FF 00 78 00 06 00 00 25 09 07 D2 04 03 0 06 26 09 07 D2 04 03 0 06 07 D2 78 00 06 00 00 27 09 07 D2 06 FF 00 78 00 06 00 00 04 03 28 09 04 03 06 FF 00 78 00 FA BE 7

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13.3 —

HOLC	
7 008 0221 61 93 50 4 7	SNRM
7 008 61 0221 73 2 9 7	UA
7 01 0221 61 12 1983 6 600 001 1 0046 0000600301FF 0200 879 7	Get-request-normai 0070 0.0.96.3.1.255 02
7 01361 0221 50 345 6 700 401 100 03 01 D49F 7	Get-response-normat «true» —

HOLC	
7 01 0221 61 34 2DC7 6 600 301 1 0046 0000600301FF 0101 0F 00 EFB4 7	Actxxi •request-normal 0070 0.0.96.3.1.255 01 — -
7 012 61 0221 50 345 6 700 701 1 00 00 D4AF 7	Acbon-response-normal
7 01 0221 61 12 1963 6 600 001 1 0046 0000600301FF 0200 879 7	Get-request-normal 0070 0.0.961.255 02
7 61 0221 50 343 6 700 401 100 03 00 D49A7E	Get-response-normal «false» —

{ ) .1 0.25 0.5S. 670 0.4 0.4 0.5S 0.5. 150 670 0.4 1. 150 0.4 D — .2 : ); .1. .1 — . . . 670 ) 0.4 150 670 . . . . . . 150 D . . .

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OBIS- ,

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1)	(	)	0.0.96.2.0.255
2)			0.0.96.2.1.255
3)			0.0.96.2.5.255
1)			0.0.96.2.7.255
5)			0.0.96.2.12.255
5)			0.0.96.2.13.255
<b>'</b> )			0.0.9620.0.255
3)			0.0.96.20.1.255
9)			0.0.96.20.2.255
10)			0.0.96.20.3.255
11)			0.0.96.20.5.255
12)			0.0.96.20.6.255
13}			0.0.96.20.7.255
14}			0.0.9620.8255
15)			0.0.96.20.15.255
16}			0.0.96.20.16255
17}			0.0.96.20.17255
18}			0.0.96.20.18.255
19)'			0.0.96.15.0.255
20)*			0.0.96.50.0.255
21}*			0.0.96.50.1.255
22}*			0.0.96.50.6.255
23)'			0.0.96.50.11.255

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Nt	OBIS-km
1	1.0.0.11.1.255
2	1.0.0.11.2.255
3	1.0.0.11.3.255
4	1.0.0.11.4.255
5	1.0.0.11.5.255
6	1.0.0.11.6.255
7	1.0.0.11.7.255

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			T	
	( .)	( .)	OBiS-	1
1	Real Time Clock — Date and Time		0.0.1.0.0.255	8/2
2	Current — !r		1.0.31.7.0.255	3/2
3	Current — ly		1.0.51.7.0.255	3/2
4	Current — Ib		1.0.71.7.0.255	3/2
5	Voltage —VRN	Α/ -	1.0.32.7.0.255	3/2
6	Voltage — VYN	В/ -	1.0.52.7.0.255	312
7	Voltage —VBN	C/ -	1.0.72.7.0.255	3/2
8'	Signed Power Factor — R phase		1.0.33.7.0.255	312
9'	Signed Power Factor — Y phase		1.0.53.7.0.255	3/2
10'	Signed Power Factor — phase		1.0.73.7.0.255	3/2
11	Three Phase Power Factor— PF		1.0.13.7.0.255	3/2
12	Frequency		1.0.14.7.0.255	3/2
13	Apparent Power		1.0.9.7.0.255	3/2
14'	Apparent Power R phase		1.0.29.7.0.255	3/2
15'	Apparent Power Y phase		1.0.49.7.0.255	3/2
16'	Apparent Power phase		1.0.69.7.0.255	312
17	Signed Active Power		1.0.1.7.0.255	312
18'	Signed Active Power R phase		1.0.21.7.0.255	3/2

191   Signed Active Power Y phase   1.0.41.7.0.255   3/2     201   Signed Reactive Power phase   1.0.51.7.0.255   3/2     21   Signed Reactive Power Phase   1.0.3.7.0.255   3/2     22   Signed Reactive Power R phase   1.0.3.7.0.255   3/2     23   Signed Reactive Power Phase   1.0.23.7.0.255   3/2     24   Signed Reactive Power Phase   1.0.43.7.0.255   3/2     25   Cumulative Active Energy   1.0.18.0.255   3/2     25   Cumulative Active Energy   1.0.18.0.255   3/2     26   Cumulative Reactive Energy   1.0.18.0.255   3/2     27   Cumulative Reactive Energy   1.0.3.8.0.255   3/2     28   Cumulative Reactive Energy   1.0.4.8.0.255   3/2     29   Cumulative Ampere-squared hours   1.0.88.8.0.255   3/2     30   Cumulative Volt-squared hours   1.0.88.8.0.255   3/2     31   1.0.12.7.1.255   3/2     32   1.0.12.7.2.255   3/2     33   Active Energy L1 (Import)   1.0.12.7.3.255   3/2     34   Active Energy L2 (Import)   1.0.12.7.3.255   3/2     35   Active Energy L2 (Import)   1.0.12.8.0.255   3/2     37   Active Energy L2 (Export)   1.0.42.8.0.255   3/2     38   Active Energy L2 (Export)   1.0.22.8.0.255   3/2     40   Active Energy L2 (Export)   1.0.22.8.0.255   3/2     41   Active Energy L2 (Export)   1.0.23.8.0.255   3/2     42   Reactive Energy L2 (Export)   1.0.23.8.0.255   3/2     43   Reactive Energy L2 (Export)   1.0.43.8.0.255   3/2     44   Reactive Energy L2 (Export)   1.0.43.8.0.255   3/2     45   Reactive Energy L2 (Export)   1.0.43.8.0.255   3/2     46   Reactive Energy L2 (Export)   1.0.43.8.0.255   3/2     47   Reactive Energy L2 (Export)   1.0.44.8.0.255   3/2     47   Reactive Energy L2 (Export)   1.0.44.8.0.255   3/2     47   Reactive Energy L2 (Ex					,
20   Signed Active Power phase   1.0.61.7.0.255   3/2		( .)	( .)	OBIS-	/
21       Signed Reactive Power       1.0.3.7.0.255       3/2         22'       Signed Reactive Power R phase       1.0.23.7.0.255       3/2         23'       Signed Reactive Power P phase       1.0.43.7.0.255       3/2         24'       Signed Reactive Power phase       1.0.63.7.0.255       3/2         25       Cumulative Active Energy (Export)       1.0.18.0.255       3/2         26       Cumulative Reactive Energy (Export)       1.0.3.8.0.255       3/2         27       Cumulative Reactive Energy (Export)       1.0.4.8.0.255       3/2         28       Cumulative Reactive Energy (Export)       1.0.4.8.0.255       3/2         29'       Cumulative Ampere-squared hours       1.0.88.8.0.255       3/2         30'       Cumulative Volt-squared hours       1.0.89.8.0.255       3/2         31'       1.0.12.7.1.255       3/2         32'       1.0.12.7.1.255       3/2         31'       1.0.12.7.2.255       3/2         34'       1.0.12.7.3.255       3/2         35'       1.0.15.16.0.255       3/2         36'       Active Energy L1 (Import)       1.0.21.8.0.255       3/2         37'       Active Energy L2 (Import)       1.0.41.8.0.255       3/2	19'	Signed Active Power Y phase		1.0.41.7.0.255	3/2
22'       Signed Reactive Power R phase       1.0.23.7.0.255       3/2         23'       Signed Reactive Power y phase       1.0.43.7.0.255       3/2         24'       Signed Reactive Power phase       1.0.63.7.0.255       3/2         25       Cumulative Active Energy (import)       1.0.18.0.255       3/2         26       Cumulative Active Energy (import)       1.0.28.0.255       3/2         27       Cumulative Reactive Energy (import)       1.0.48.0.255       3/2         28       Cumulative Active Energy (import)       1.0.48.0.255       3/2         29'       Cumulative Ampere-squared hours       1.0.88.8.0.255       3/2         30'       Cumulative Volt-squared hours       1.0.89.8.0.255       3/2         31'       1.0.12.7.1.255       3/2         32'       1.0.12.7.2.255       3/2         31'       1.0.12.7.2.255       3/2         32'       1.0.12.7.2.255       3/2         34'       1.0.12.7.2.255       3/2         35'       1.0.15.16.0.255       3/2         36'       Active Energy L1 (import)       1.0.21.8.0.255       3/2         37'       Active Energy L2 (import)       1.0.21.8.0.255       3/2         38'       Active Energy L3 (impor	20'	Signed Active Power phase		1.0.61.7.0.255	3/2
23'         Signed Reactive Power Y phase         1.0.43.7.0.255         3/2           24'         Signed Reactive Power phase         1.0.63.7.0.255         3/2           25         Cumulative Active Energy (Import)         1.0.1.8.0.255         3/2           26         (Export)         1.0.2.8.0.255         3/2           27         Cumulative Reactive Energy (Import)         1.0.3.8.0.255         3/2           28         Cumulative Reactive Energy (Export)         1.0.48.0.255         3/2           29         Cumulative Ampere-squared hours         1.0.88.8.0.255         3/2           30'         Cumulative Volt-squared hours         1.0.89.8.0.255         3/2           31'         1.0.12.7.1.255         3/2           32'         1.0.12.7.3.255         3/2           31'         1.0.12.7.3.255         3/2           32'         1.0.12.7.3.255         3/2           34'         1.0.15.16.0.255         3/2           34'         1.0.15.16.0.255         3/2           35'         1.0.15.16.0.255         3/2           36'         Active Energy L1 (Import)         1.0.41.8.0.255         3/2           37'         Active Energy L2 (Import)         1.0.22.8.0.255         3/2	21	Signed Reactive Power		1.0.3.7.0.255	3/2
24'       Signed Reactive Power phase       1.0.63.7.0.255       3/2         25       Cumulative Active Energy (Import)       1.0.1.8.0.255       3/2         26       Cumulative Reactive Energy (Import)       1.0.3.8.0.255       3/2         27       Cumulative Reactive Energy (Import)       1.0.4.8.0.255       3/2         28       Cumulative Ampere-squared hours       1.0.88.8.0.255       3/2         29'       Cumulative Ampere-squared hours       1.0.88.8.0.255       3/2         31'       1.0.12.7.1.255       3/2         32'       1.0.12.7.1.255       3/2         31'       1.0.12.7.2.255       3/2         32'       1.0.12.7.3.255       3/2         34'       1.0.15.16.0.255       3/2         34'       1.0.15.16.0.255       3/2         35'       1.0.15.16.0.255       3/2         36'       Active Energy L1 (Import)       1.0.21.8.0.255       3/2         37'       Active Energy L2 (Import)       1.0.41.8.0.255       3/2         40'       Active Energy L1 (Export)       1.0.22.8.0.255       3/2         40'       Active Energy L2 (Export)       1.0.42.8.0.255       3/2         41'       Active Energy L3 (Import)       1.0.23.8.0.255 <t< td=""><td>22'</td><td>Signed Reactive Power R phase</td><td></td><td>1.0.23.7.0.255</td><td>3/2</td></t<>	22'	Signed Reactive Power R phase		1.0.23.7.0.255	3/2
25 Cumulative Active Energy (mport)	23'	Signed Reactive Power Y phase		1.0.43.7.0.255	3/2
Cumulative Active Energy (Export)   1.0.2.8.0.255   3/2	24'	Signed Reactive Power phase		1.0.63.7.0.255	3/2
CEXPORT   1.0.2.8.0.255   3/2	25		,	1.0.1.8.0.255	3/2
28   Cumulative Reactive Energy	26		,	1.0.2.8.0.255	3/2
Camulative   Ampere-squared   1.0.88.8.0.255   3/2	27		,	1.0.3.8.0.255	3/2
1.0.88.8.0.255   3/2	28		,	1.0.4.8.0.255	3/2
31 • 1.0.12.7.1.255 3/2  32	29'			1.0.88.8.0.255	3/2
32'	30'	Cumulative Volt-squared hours		1.0.89.8.0.255	3/2
33'	31 •			1.0.12.7.1.255	3/2
34' - 1.0.15.16.0.255 3/2  36' Active Energy L1 (Import) . 1.0.21.8.0.255 3/2  37' Active Energy L2 (import) . 1.0.41.8.0.255 3/2  38' Active Energy L3 (Import) . 1.0.61.8.0.255 3/2  39' Active Energy L1 (Export) . 1.0.22.8.0.255 3/2  40' Active Energy L2 (Export) . 1.0.42.8.0.255 3/2  41' Active Energy L3 (Export) . 1.0.62.8.0.255 3/2  42' Reactive Energy L1 (Import) . 1.0.23.8.0.255 3/2  43' Reactive Energy L2 (Import) . 1.0.43.8.0.255 3/2  44' Reactive Energy L3 (Import) . 1.0.63.8.0.255 3/2  45' Reactive Energy L1 (Export) . 1.0.24.8.0.255 3/2  46' Reactive Energy L2 (Export) . 1.0.24.8.0.255 3/2	32'			1.0.12.7.2.255	3/2
34' - 1.0.15.16.0.255 3/2  35' - 1.0.15.16.1.255 3/2  36' Active Energy L1 (Import)	33'			1.0.12.7.3.255	3/2
35' Active Energy L1 (Import) . 1.0.15.16.1.255 3/2 37' Active Energy L2 (import) . 1.0.41.8.0.255 3/2 38' Active Energy L3 (Import) . 1.0.61.8.0.255 3/2 39' Active Energy L1 (Export) . 1.0.22.8.0.255 3/2 40' Active Energy L2 (Export) . 1.0.42.8.0.255 3/2 41' Active Energy L3 (Export) . 1.0.62.8.0.255 3/2 42' Reactive Energy L1 (Import) . 1.0.23.8.0.255 3/2 43' Reactive Energy L2 (Import) . 1.0.43.8.0.255 3/2 44' Reactive Energy L3 (Import) . 1.0.43.8.0.255 3/2 45' Reactive Energy L3 (Import) . 1.0.24.8.0.255 3/2 46' Reactive Energy L1 (Export) . 1.0.24.8.0.255 3/2	34'		-	1.0.15.16.0.255	3/2
37'       Active Energy L2 (import)       .       1.0.41.8.0.255       312         38'       Active Energy L3 (Import)       .       1.0.61.8.0.255       3/2         39'       Active Energy L1 (Export)       .       1.0.22.8.0.255       3/2         40'       Active Energy L2 (Export)       .       1.0.42.8.0.255       3/2         41'       Active Energy L3 (Export)       .       1.0.62.8.0.255       3/2         42'       Reactive Energy L1 (Import)       .       1.0.23.8.0.255       3/2         43'       Reactive Energy L2 (Import)       .       1.0.43.8.0.255       3/2         44'       Reactive Energy L3 (Import)       .       1.0.24.8.0.255       3/2         45'       Reactive Energy L1 (Export)       .       1.0.24.8.0.255       3/2         46'       Reactive Energy L2 (Export)       .       1.0.44.8.0.255       3/2	35'			1.0.15.16.1.255	3/2
38'       Active Energy L3 (Import)       .       1.0.61.8.0.255       3/2         39'       Active Energy L1 (Export)       .       1.0.22.8.0.255       3/2         40'       Active Energy L2 (Export)       .       1.0.42.8.0.255       3/2         41'       Active Energy L3 (Export)       .       1.0.62.8.0.255       3/2         42'       Reactive Energy L1 (Import)       .       1.0.23.8.0.255       3/2         43'       Reactive Energy L2 (Import)       .       1.0.43.8.0.255       3/2         44'       Reactive Energy L3 (Import)       .       1.0.63.8.0.255       3/2         45'       Reactive Energy L1 (Export)       .       1.0.24.8.0.255       3/2         46'       Reactive Energy L2 (Export)       .       1.0.44.8.0.255       3/2	36'	Active Energy L1 (Import)		1.0.21.8.0.255	3/2
39' Active Energy L1 (Export) . 1.0.22.8.0.255 3/2  40' Active Energy L2 (Export) . 1.0.42.8.0.255 3/2  41' Active Energy L3 (Export) . 1.0.62.8.0.255 3/2  42' Reactive Energy L1 (Import) . 1.0.23.8.0.255 3/2  43' Reactive Energy L2 (Import) . 1.0.43.8.0.255 3/2  44' Reactive Energy L3 (Import) . 1.0.63.8.0.255 3/2  45' Reactive Energy L1 (Export) . 1.0.24.8.0.255 3/2  46' Reactive Energy L2 (Export) . 1.0.44.8.0.255 3/2	37'	Active Energy L2 (import)		1.0.41.8.0.255	312
40'       Active Energy L2 (Export)       .       1.0.42.8.0.255       3/2         41'       Active Energy L3 (Export)       .       1.0.62.8.0.255       3/2         42'       Reactive Energy L1 (Import)       .       1.0.23.8.0.255       312         43'       Reactive Energy L2 (Import)       .       1.0.43.8.0.255       3/2         44'       Reactive Energy L3 (Import)       .       1.0.63.8.0.255       3/2         45'       Reactive Energy L1 (Export)       .       1.0.24.8.0.255       3/2         46'       Reactive Energy L2 (Export)       .       1.0.44.8.0.255       3/2	38'	Active Energy L3 (Import)	·	1.0.61.8.0.255	3/2
41'       Active Energy L3 (Export)       .       1.0.62.8.0.255       3/2         42'       Reactive Energy L1 (Import)       .       1.0.23.8.0.255       312         43'       Reactive Energy L2 (Import)       .       1.0.43.8.0.255       3/2         44'       Reactive Energy L3 (Import)       .       1.0.63.8.0.255       3/2         45'       Reactive Energy L1 (Export)       .       1.0.24.8.0.255       3/2         46'       Reactive Energy L2 (Export)       .       1.0.44.8.0.255       3/2	39'	Active Energy L1 (Export)		1.0.22.8.0.255	3/2
42'       Reactive Energy LI (Import)       .       1.0.23.8.0.255       312         43'       Reactive Energy L2 (Import)       .       1.0.43.8.0.255       3/2         44'       Reactive Energy L3 (Import)       .       1.0.63.8.0.255       3/2         45'       Reactive Energy LI (Export)       .       1.0.24.8.0.255       3/2         46'       Reactive Energy L2 (Export)       .       1.0.44.8.0.255       3/2	40'	Active Energy L2 (Export)		1.0.42.8.0.255	3/2
43'       Reactive Energy L2 (Import)       .       1.0.43.8.0.255       3/2         44'       Reactive Energy L3 (Import)       .       1.0.63.8.0.255       3/2         45'       Reactive Energy L1 (Export)       .       1.0.24.8.0.255       3/2         46'       Reactive Energy L2 (Export)       .       1.0.44.8.0.255       3/2	41'	Active Energy L3 (Export)	·	1.0.62.8.0.255	3/2
44'       Reactive Energy L3 (Import)       .       1.0.63.8.0.255       3/2         45'       Reactive Energy LI (Export)       .       1.0.24.8.0.255       3/2         46'       Reactive Energy L2 (Export)       .       1.0.44.8.0.255       3/2	42'	Reactive Energy LI (Import)		1.0.23.8.0.255	312
45'       Reactive Energy LI (Export)       .       1.0.24.8.0.255       3/2         46'       Reactive Energy L2 (Export)       .       1.0.44.8.0.255       3/2	43'	Reactive Energy L2 (Import)		1.0.43.8.0.255	3/2
46' Reactive Energy L2 (Export) . 1.0.44.8.0.255 3/2	44'	Reactive Energy L3 (Import)		1.0.63.8.0.255	3/2
	45'	Reactive Energy LI (Export)		1.0.24.8.0.255	3/2
47' Reactive Energy L3 (Export) . 1.0.64.8.0.255 3/2	46'	Reactive Energy L2 (Export)		1.0.44.8.0.255	3/2
	47'	Reactive Energy L3 (Export)		1.0.64.8.0.255	3/2

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1	Real Time Clock — Date and Time		0.0.1.0.0.255	8/2
2	Block Active Energy — import	-	1.0.1.29.0.255	3/2
3	Block Active Energy — export	-	1.0.2.29.0.255	
4	Block Reactive Energy — import	, -	1.0.329.0.255	
5	Block Reactive Energy — export	,	1.0.4.29.0.255	
6*	Voltage —VRN		1.0.32.7.0.255	
7'	Voltage — VYN		1.0.52.7.0.255	
8*	Voltage — VBN		1.0.72.7.0.255	

	( .)	( .)	OBIS-
9*	Voltage — VRY		1.0.32.7.0.255 3/2
10*	Voltage — VYB		1.0.52.7.0.255 3/2
1	Voltage — VRB		1.0.72.7.0.255 3/2
12'	Temperature — C'	. *	0.0.96.9.0.255 3/2
13*	Time of operation		0.0.96.8.0.255 3/2
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	( .)	( .)	OBIS-Kcua	1
1	Real Time Clock — Date and Time		0.0.1.0.0.255	8/2
2	Cumulative Active Energy — TZ1	, 1 -	1.0.1.8.1.255	3/2
3	Cumulative Active Energy — TZ2	, 2 -	1.0.1.8.2.255	3/2
4	Cumulative Active Energy — TZ3	, 3 -	1.0.1.8.3.255	3/2
5	Cumulative Active Energy — TZ4	, 4 -	1.0.1.8.4.255	3/2
6'	Cumulative Active Energy — TZ5	, 5 -	1.0.1.8.5.255	3/2

( ( .) OBIS-6 -7\* **Cumulative Active Energy — TZ6** 1.0.1.8.6.255 3/2 7 8\* **Cumulative Active Energy — TZ7** 1.0.1.8.7.255 3/2 8 9\* **Cumulative Active Energy — TZ8** 1.0.1.8.8.255 3/2 ( 1.0.1.8.0.255 3/2 10 **Cumulative Active Energy — (Import)** ) 11 Cumulative Active Energy — (Export) 1.0.2.8.0.255 3/2 Cumulative Reactive Energy — 12 1.0.3.8.0.255 3/2 (Import) Cumulative Reactive Energy — 13 1.0.4.8.0.255 3/2 (Export) 3/2 14' **Cumulative Ampere-squared hours** 1.0.88.8.0.255 15\* **Cumulative Volt-squared hours** 1.0.89.8.0.255 3/2 16' Time of fault hecz 0.0.96.8.1.255 3/2 17\* 0.0.96.5.1.255 Status fault energy 1/2 18' Time of operation 0.0.96.8.0255 3/2 19' 1.0.21.8.0.255 3/2 20\* 1.0.41.8.0.255 3/2 21\* 1.0.61.8.0.255 3/2 1 -22 1.0.2.8.1.255 3/2 2 -23 1.0.2.8.2.255 3/2 3 -24 1.0.2.8.3.255 3/2 4 -3/2 25 1.0.2.8.4.255 5 -26\* 1.0.2.8.5.255 3/2 6 -27\* 1.0.2.8.6.255 3/2 28' 1.0.2.8.7.255 3/2 8 -29' 1.0.2.8.8.255 3/2 3/2 30' 1.0.22.8.0255 1.0.42.8.0.255 3/2 . 32' 1.0.62.8.0255 3/2 \_

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	( .)	( .)	OBIS-	1
33		1	1.0.3.8.1.255	3/2
34		, 2	1.0.3.8.2.255	3/2
35		,	1.0.3.8.3.255	3/2
36		4	1.0.3.8.4.255	3/2
37'		, 5	1.0.3.8.5.255	3/2
38'		,	1.0.3.8.6.255	3/2
39'		7	1.0.3.8.7.255	3/2
40'		, 8	1.0.3.8.8.255	3/2
4			1.0.23.8.0.255	3/2
42'			1.0.43.8.0.255	3/2
43'			1.0.63.8.0.255	3/2
44		,	1.0.4.8.1.255	3/2
45		, 2	1.0.4.8.2.255	3/2
46		,	1.0.4.8.3.255	3/2
47		4	1.0.4.8.4.255	3/2
48'		, 5	1.0.4.8.5.255	3/2
49'		, 6	1.0.4.8.6.255	3/2
50"		7	1.0.4.8.7.255	3/2
51'		,	1.0.4.8.8.255	3/2
52'			1.0.24.8.0.255	3/2
53'			1.0.44.8.0.255	3/2
54'			1.0.64.8.0.255	3/2

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55'		1	1.0.88.8.1.255	3/2
56'		2	1.0.88.8.2.255	3/2
57'		3	1.0.88.8.3.255	3/2
58'		4	1.0.88.8.4.255	3/2
59"		5	1.0.88.8.5.255	3/2
60'		6	1.0.88.8.6.255	3/2
61'		7	1.0.88.8.7.255	3/2
62'		8	1.0.88.8.8.255	3/2
63'		1	1.0.89.8.1.255	3/2
64'		2	1.0.89.8.2.255	3/2
65'		3	1.0.89.8.3.255	3/2
66'		4	1.0.89.8.4.255	3/2
67'		5	1.0.89.8.5.255	3/2
68'		- 6	1.0.89.8.6.255	3/2
69"		7	1.0.89.8.7.255	3/2
70'		- 8	1.0.89.8.8.255	3/2
71'			1.0.15.16.0.255	3/2
72'			1.0.15.16.1.255	3/2
73'		-	1.0.0.8.6.255	3/2
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1	Real Time Clock — Date and Time		0.0.1.0.0.255	8/2
2	Cumulative Active Energy — Import	,	1.0.1.8.0 J55	3/2
3	Cumulative Active Energy — TZ1	,	1.0.1.8.1.255	3/2
4	Cumulative Active Energy — TZ2	, 2	1.0.1.8.2.255	3/2
5	Cumulative Active Energy — TZ3	3	1.0.1.8.3.255	3/2
6	Cumulative Active Energy — TZ4	4	1.0.1.8.4.255	3/2
7'	Cumulative Active Energy — TZ5	5	1.0.1.8.5.255	3/2
8'	Cumulative Active Energy — TZ6	6	1.0.1.8.6.255	3/2
9"	Cumulative Active Energy — TZ7	7	1.0.1.8.7.255	3/2
10'	Cumulative Active Energy — TZ8	8	1.0.1.8.8.255	3/2
11	Cumulative Reactive Energy — Import	_	1.0.3.8.0.255	3/2
12	Cumulative Reactive Energy — Export	_	1.0.4.8.0.255	3/2
13'	Cumulative Apparent Energy		1.0.9.8.0.255	3/2
14	Cumulative Active Energy — Export	,	1.0.2.8.0.255	3/2
15'	MD	-	1.0.1.6.0.255	4/2.5
16'	Cumulative Ampere-squared hours		1.0.88.8.0.255	3/2
17'	Cumulative Volt-squared hours		1.0.89.8.0.255	3/2
18'	Time of operation		0.0.96.8.0.255	3/2
19"			1.021.8.0.255	3/2
20'			1.0.41.8.0.255	3/2
21'			1.0.61.8.0.255	3/2
22		1	1.0.2.8.1.255	3/2

23 2 , 1.0.2.8.2.255 24 3 , 1.0.2.8.3.255 25 4 , 1.0.2.8.4.255	3/2 3/2 3/2 3/2
3 1.0.2.0.3.255	3/2
	3/2
26' 1.0.2.8.5.255	
27'	3/2
28' , 1.0.2.8.7.255	3/2
29' 8 1.0.2.8.8.255	3/2
30' 1.0.22.8.0.255	3/2
31' 1.0.42.8.0.255	3/2
32' 1.0.62.8.0.255	3/2
33 , 1.0.3.8.1255	3/2
34 , 1.0.3.8.2.255	3/2
35 , 1.0.3.8.3.255	3/2
36 , 1.0.3.8.4.255	3/2
37'	3/2
38' , 1.0.3.8.6.255	3/2
39" , 1.0.3.8.7255	3/2
40" 1.0.3.8.8255	3/2
41' 1.0.23.8.0.255	3/2
42' 1.0.43.8.0.255	3/2
43' 1.0.63.8.0.255	3/2
1 1.0.4.8.1.255	3/2

Nt	( .)	( .)	OBJS-KM	1
45		,	1.0.4.8.2.255	3/2
46		,	1.0.4.8.3.255	3/2
47		,	1.0.4.8.4.255	3/2
48'		, 5	1.0.4.8.5.255	3/2
49*		,	1.0.4.8.6.255	3/2
50'		7	1.0.4.8.7.255	3/2
51'		, 8	1.0.4.8.8.255	3/2
52'			1.0.24.8.0.255	3/2
53'			1.0.44.8.0.255	3/2
54'			1.0.64.8.0.255	3/2
55'		1 -	1.0.88.8.1.255	3/2
56'		2 -	1.0.88.8.2.255	3/2
57'		3 -	1.0.88.8.3.255	3/2
58'		4 -	1.0.88.8.4.255	3/2
59"		5 -	1.0.88.8.5.255	3/2
60'		6 -	1.0.88.8.6.255	3/2
61'		7 -	1.0.88.8.7.255	3/2
62'		8 -	1.0.88.8.8.255	3/2
63'		1	1.0.89.8.1.255	3/2
64'		2	1.0.89.8.2.255	3/2
65'		3	1.0.89.8.3.255	3/2
66'		4	1.0.89.8.4.255	3/2

Nt	( .)	( .)	OBJS-KM	1
67'		5	1.0.89.8.5.255	3/2
68'		6	1.0.89.8.6.255	3/2
69'		7	1.0.89.8.7.255	3/2
70'		8	1.0.89.8.8.255	3/2
71		-	1.0.0.8.6.255	3/2
72		tg ( )	1.0.131.6.128.255	3/2
73		-	1.0.9.3.128.255	3/2
74		-	1.0.9.6.128.255	3/2
75		-	1.0.15.3.128.255	3/2
76		-	1.0.15.6.128.255	3/2
77		-	1.0.137.3.128.255	3/2
78		-	1.0.137.6.128.255	3/2
79		-	1.0.15.6.129.255	3/2
80		-	1.0.15.6.130.255	3/2
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36 ( : 7)

## 58940—2020

OBIS- 1.0.98.1.0.255. ( ), 7.3.6 13.4. 4 ( (MD). 25( ). «Scaler\_unit> OBIS-( : 7). 1.0.94.7.1.255. 0). .5 1.0.94.7.5.255, : 7. **— 5** , .5. .5 —

N» OBIS-1 0.0.1.0.0.255 8/2 2 1.0.31.7.0.255 312 3 1.0.51.7.0.255 312 4 1.0.71.7.0.255 3/2 3/2 1.0.32.7.0.255 312 6 1.0.52.7.0.255 7 1.0.72.7.0.255 3/2 8 1.0.1.7.0.255 312 3/2 9 1.0.3.7.0.255 312 10 1.0.9.7.0.255 3/2 11 1.0.13.7.0.255

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N»	( .)	( .)	OBIS-	/
1	Real Time Clock — Date and Time		0.0.1.0.0.255	8/2
2	Cunent — Iph		1.0.11.7.0.255	312
3	Current — In		1.0.91.7.0.255	312
4	Voltage — V		1.0.12.7.0.255	312
5	Power Factor — PF		1.0.13.7.0.255	3/2
6	Frequency		1.0.14.7.0.255	3/2
7	Apparent Power		1.0.9.7.0.255	3/2
8	Signed Active Power (+ Import; - Export)		1.0.1.7.0.255	3/2
9	Signed Reactive Power (+ Import: - Export)		1.0.3.7.0.255	3/2
10	Cumulative Active Energy (Import)	,	1.0.1.8.0.255	3/2
11	Cumulative Active Energy (Export)	,	1.0.2.8.0.255	3/2
12	Cumulative Reactive Energy (Import)	,	1.0.3.8.0.255	3/2
13	Cumulative Reactive Energy (Export)	,	1.0.4.8.0.255	3/2
14*	Cumulative Ampere-squared hours		1.0.88.8.0.255	3/2
15			1.0.91.7.131.255	3/2
16"		. %	1.0.91.7.132.255	312
3	1 , *. 2	. «-» — , «-» — . «-» —		
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1 7	7 15 16		·	

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    OBIS-
    1.0.94.7.0.255.
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    1.0.94.7.0.255.
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«Scaler_unil»
                                                                                          OBIS-
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1.0.94.7.3.255.
                   , «3» — «Scaler_unit».
      <2» —
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                                                        ( . 7.3.6). OBIS-
                                                                               1.0.99.1.0.255. : 7.
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                                                        OBIS- 1.0.0.8.4.255 (
                                                                                   1}.
                                                              180 .
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N1	( .)	( .)	OBIS-km	1
1	Real Time Clock — Date and		0.0.1.0.0.255	6/2
2	Block Active Energy — Import	,	1.0.129.0.255	3/2
3	Block Active Energy — Export	,	1.0.2.29.0.255	3/2
4	Block Reactive Energy—import	,	1.0.3.29.0.255	/2
5*	Block Reactive Energy — Export	,	1.0.4.29.0.255	3/2
6'	Block Apparent Energy		1.0.9.29.0.255	3/2
7*	Current — lph		1.0.11.7.0.255	3/2
8*	Current — tn		1.0.91.7.0.255	3/2
9'	Voltage — V		1.0.12.7.0.255	3/2
10*	Temperature		0.0.96.9.0.255	3/2
11*	Time of operation		0.0.96.8.0.255	3/2

7 OBIS- 1.0.94.7.4.255. , .2. .

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. OBIS- 1.0.98.2.0.255. . 7.

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N*	( .)	( .)	OBIS-km	1
1	Real Time Clock — Date and Time		0.0.1.0.0.255	012
2	Cumulative Active Energy — TZ1	, 1	1.0.1.8.1.255	3/2
3	Cumulative Active Energy — TZ2	, 2	1.0.1.8.2.255	3/2
4	Cumulative Active Energy — TZ3	, 3	1.0.1.8.3.255	3/2
5	Cumulative Active Energy — TZ4	, 4	1.0.1.8.4.255	3/2
6'	Cumulative Active Energy — TZ5	, 5	1.0.1.8.5.255	3/2
7'	Cumulative Active Energy — TZ6	, 6	1.0.1.6.6.255	3/2
8'	Cumulative Active Energy — TZ7	, 7	1.0.1.8.7.255	3/2
9'	Cumulative Active Energy — TZ8	, 8	1.0.1.8.8.255	3/2
10	Cumulative Active Energy — (Import)	,	1.0.1.8.0.255	3/2
11	Cumulative Active Energy — (Export)	,	1.0.2.8.0.255	3/2
12	Cumulative Reactive Energy—(Import)	,	1.0.3.8.0.255	3/2
13	Cumulative Reactive Energy—(Export)	,	1.0.4.8.0.255	3/2
14'	Cumulative Ampere-squared hours		1.0.88.8.0.255	3/2
15'	Time of fault herz		0.0.96.8.1.255	3/2
16'	Status fault energy		0.0.96.5.1.255	1/2
17'	Time of operation		0.0.96.8.0.255	3/2
18		, 1	1.0.2.8.1.255	3/2
19		, 2	1.0.2.8.2.255	3/2
20		, 3	1.0.2.8.3.255	3/2
21		, 4	1.0.2.8.4.255	3/2
22*		, 5	1.0.2.8.5.255	3/2
23'		, 6	1.0.2.8.6.255	3/2
24'		, 7	1.0.2.8.7.255	3/2
25'		, 8	1.0.2.8.8.255	3/2
26'		, 1 -	1.0.3.8.1.255	3/2

Nt	( .)	( .)	OBIS-	?
27"		, 2 -	4.0.2.0.2.255	2/2
21		2	1.0.3.8.2.255	3/2
28*		, 3 -	1.0.3.8.3.255	3/2
29'		, 4 -	1.0.3.8.4.255	3/2
-		, 5 -	1.0.3.8.5.255	3/2
		, 6 -	1.0.3.8.6.255	3/2
32*		, 7 -	1.0.3.8.7.255	3/2
33"		, 8 -	1.0.3.8.8.255	3/2
34'		, 1 -	1.0.4.8.1.255	3/2
35'		, 2 -	1.0.4.8.2.255	3/2
36*		, 3 -	1.0.4.8.3.255	3/2
37"		, 4 -	1.0.4.8.4.255	3/2
38*		, 5 -	1.0.4.8.5.255	3/2
39*		, 6 -	1.0.4.8.6.255	3/2
40*		, 7 -	1.0.4.8.7.255	3/2
41*		, 8 -	1.0.4.8.8.255	3/2
42*		1	1.0.88.8.1.255	3/2
43*		2	1.0.88.8.2.255	3/2
44*		3	1.0.88.8.3.255	3/2
45*		4	1.0.88.8.4.255	3/2
46*		5	1.0.88.8.5.255	3/2
47*		6	1.0.88.8.6.255	3/2
48*		7	1.0.88.8.7.255	3/2

Nt	( .}	( .)	OBIS-kob	,
49*		8	1.0.88.8.8.255	3/2
50'		-	1.0.15.16.0.255	3/2
51"		-	1.0.15.16.1.255	3/2
52*			1.0.0.8.6.255	3/2
2	(00:00).			-
3				-
	l 15 —	± 0.2 .		
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7	•			
8		, 7.3.6 13.4.		

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Nt	( .)	( .)	OBIS-KOA	,
1	Real Time Clock — Date and		0.0.1.0.0.255	8/2
2	Cumulative Energy	,	1.0.1.8.0.255	3/2
3	Cumulative Active Energy — TZ1	, 1	1.0.1.8.1.255	312
4	Cumulative Active Energy — TZ2	, 2	1.0.1.8.2.255	3/2
5	Cumulative Active Energy — TZ3	, 3	1.0.1.8.3.255	3/2
6	Cumulative Active Energy — TZ4	, 4	1.0.1.8.4.255	3/2
7*	Cumulative Active Energy — TZ5	, 5	1.0.1.8.5.255	3/2
8'	Cumulative Active Energy — TZ6	, 6	1.0.1.8.6.255	3/2
9'	Cumulative Active Energy — TZ7	, 7	1.0.1.8.7.255	3/2

N: Cumulative Active Energy   10.3			, ,		
11       Cumulative Reactive Energy Import       1.0.3.8.0.255       32         12       Cumulative Reactive Energy Export       1.0.4.8.0.255       32         13°       Cumulative Apparent Energy       1.0.9.8.0.255       72         14°       MD — kW       1.0.1.6.0.255       4/5         15°       Cumulative Ampere-squared hours       2       1.0.88.0.255       3/2         16°       Time of operation       0.096.8.0.255       3/2         17       1       1.0.2.8.1.255       3/2         18       , 2       1.0.2.8.1.255       3/2         19       , 3       1.0.2.8.2.255       3/2         20       , 4       1.0.2.8.2.255       3/2         21°       , 5       1.0.2.8.2.55       3/2         22°       , 6       1.0.2.8.2.55       3/2         22°       , 6       1.0.2.8.2.55       3/2         22°       , 7       1.0.2.8.7.255       3/2         22°       , 8       1.0.2.8.2.55       3/2         22°       , 8       1.0.2.8.2.55       3/2         24°       , 8       1.0.2.8.2.55       3/2         25°       , 1       1.0.2.8.2.55       3/2 <t< td=""><td>Nt</td><td>{ .)</td><td>( .)</td><td>OBiS-</td><td></td></t<>	Nt	{ .)	( .)	OBiS-	
Import	10*	Cumulative Active Energy — TZ8	, 8	1.0.1.8.8.255	3/2
13" Cumulative Apparent Energy 1.0.9.8.0.255	11			1.0.3.8.0.255	3/2
14*       MD — kW       1.0.1.6.0.255       4/2 4/6         15*       Cumulative Ampere-squared hours       2       1.0.88.8.0.255       3/2         16*       Time of operation       0.0.96.8.0.255       3/2         18       .       .       1       1.0.2.8.1.255       3/2         19       .       .       .       .       1.0.2.8.2.255       3/2         20       . <t< td=""><td>12</td><td>Cumulative Reactive Energy Export</td><td></td><td>1.0.4.8.0.255</td><td>3/2</td></t<>	12	Cumulative Reactive Energy Export		1.0.4.8.0.255	3/2
15° Cumulative Ampere-squared hours	13"	Cumulative Apparent Energy		1.0.9.8.0.255	/2
16"         Time of operation         2         1.0.88.8.0.255         3/2           17	14"	MD — kW		1.0.1.6.0.255	
17         , 1         1.0.2.8.1.255         3/2           18         , 2         1.0.2.8.2.255         3/2           19         , 3         1.0.2.8.2.255         3/2           20         , 4         1.0.2.8.2.55         3/2           21*         , 5         1.0.2.8.2.55         3/2           22*         , 6         1.0.2.8.2.55         3/2           23*         , 7         1.0.2.8.2.55         3/2           24*         , 8         1.0.2.8.2.55         3/2           25*         , 1         1.0.2.8.0.255         3/2           26*         , 1         1.0.3.8.1.255         3/2           26*         , 1         1.0.3.8.2.255         3/2           27*         , 2         1.0.3.8.2.255         3/2           28*         , 3         1.0.3.8.2.255         3/2           29*         , 4         1.0.3.8.2.255         3/2           30*         , 5         1.0.3.8.2.255         3/2           31*         , 6         1.0.3.8.2.255         3/2           32*         , 7         1.0.3.8.2.255         3/2           34*         , 1         1.0.4.8.1.2.255         3/2	15*		2	1.0.88.8.0.255	3/2
18       , 2       1.0.2.8.2.255       3/2         19       , 3       1.0.2.8.3.255       3/2         20       , 4       1.0.2.8.4.255       3/2         21*       , 5       1.0.2.8.255       3/2         22*       , 6       1.0.2.8.255       3/2         23*       , 7       1.0.2.8.255       3/2         24*       , 8       1.0.2.8.255       3/2         25       , 10.2.8.0.255       3/2         26*       , 1       1.0.3.8.1.255       3/2         27*       , 2       1.0.3.8.2.255       3/2         28*       , 3       1.0.3.8.2.255       3/2         29"       , 4       1.0.3.8.2.55       3/2         30*       , 5       1.0.3.8.2.55       3/2         31*       , 6       1.0.3.8.2.55       3/2         32*       , 7       1.0.3.8.2.55       3/2         33*       , 8       1.0.3.8.2.55       3/2         34*       , 7       1.0.3.8.2.55       3/2         35*       , 8       1.0.3.8.2.55       3/2         35*       , 7       1.0.4.8.2.255       3/2         36*       , 7       1.0.4.8.2.255	16"	Time of operation		0.0.96.8.0.255	3/2
19       , 3       1.0.2.8.3.255       3/2         20       , 4       1.0.2.8.4.255       3/2         21*       , 5       1.0.2.8.5.255       3/2         22*       , 6       1.0.2.8.6.255       3/2         23*       , 7       1.0.2.8.7.255       3/2         24*       , 8       1.0.2.8.255       3/2         25       , 10.2.8.0.255       3/2         26*       , 1       1.0.3.8.1.255       3/2         27*       , 2       1.0.3.8.2.255       3/2         28*       , 3       1.0.3.8.2.255       3/2         29*       , 4       1.0.3.8.4.255       3/2         30*       , 5       1.0.3.8.4.255       3/2         31*       , 6       1.0.3.8.2.55       3/2         32*       , 7       1.0.3.8.7.255       3/2         33*       , 8       1.0.3.8.255       3/2         34*       , 1       1.0.4.8.1.255       3/2         35**       , 2       1.0.4.8.2.255       3/2         36**       , 3       1.0.4.8.2.255       3/2         36**       , 3       1.0.4.8.2.255       3/2         36**       , 3       1.0.	17		, 1	1.0.2.8.1.255	3/2
20       , 4       1.0.2.8.4.255       3/2         21¹       , 5       1.0.2.8.5.255       3/2         22'       , 6       1.0.2.8.6.255       3/2         23¹       , 7       1.0.2.8.7.255       3/2         24¹       , 8       1.0.2.8.0.255       3/2         25       , 10.2.8.0.255       3/2         26¹       , 1       1.0.3.8.1.255       3/2         27⁺       , 2       1.0.3.8.2.255       3/2         28¹       , 3       1.0.3.8.2.255       3/2         29¹       , 4       1.0.3.8.4.255       3/2         30¹       , 5       1.0.3.8.5.255       3/2         31¹       , 6       1.0.3.8.6.255       3/2         32¹       , 7       1.0.3.8.7.255       3/2         33²       , 8       1.0.3.8.2.55       3/2         34²       , 1       1.0.4.8.1.255       3/2         35⁻¹       , 2       1.0.4.8.2.255       3/2         36⁻¹       , 3       1.0.4.8.2.255       3/2         37⁻¹       , 4       1.0.4.8.2.255       3/2         39²       , 6       1.0.4.8.6.255       3/2         40¹       , 7	18		, 2	1.0.2.8.2.255	3/2
21*       , 5       1.0.2.8.5.255       3/2         22'       , 6       1.0.2.8.6.255       3/2         23'       , 7       1.0.2.8.7.255       3/2         24'       , 8       1.0.2.8.0.255       3/2         25       , 1       1.0.3.8.1.255       3/2         26'       , 1       1.0.3.8.1.255       3/2         27*       , 2       1.0.3.8.2.255       3/2         28'       , 3       1.0.3.8.3.255       3/2         29"       , 4       1.0.3.8.4.255       3/2         30*       , 5       1.0.3.8.5.255       3/2         31*       , 6       1.0.3.8.6.255       3/2         32'       , 7       1.0.3.8.7.255       3/2         33*       , 8       1.0.3.8.255       3/2         34*       , 1       1.0.4.8.1.255       3/2         35"       , 2       1.0.4.8.2.255       3/2         36"       , 3       1.0.4.8.3.255       3/2         36"       , 3       1.0.4.8.2.255       3/2         37"       , 4       1.0.4.8.2.255       3/2         39*       , 6       1.0.4.8.5.255       3/2         40'       , 7<	19		, 3	1.0.2.8.3.255	3/2
22'       , 6       1.0.2.8.6.255       3/2         23'       , 7       1.0.2.8.7.255       3/2         24'       , 8       1.0.2.8.0.255       3/2         25       , 1.0.2.8.0.255       3/2         26'       , 1       1.0.3.8.1.255       3/2         27'       , 2       1.0.3.8.2.255       3/2         28'       , 3       1.0.3.8.3.255       3/2         29"       , 4       1.0.3.8.4.255       3/2         30"       , 5       1.0.3.8.5.255       3/2         31"       , 6       1.0.3.8.6.255       3/2         32'       , 7       1.0.3.8.7.255       3/2         32"       , 8       1.0.3.8.255       3/2         34"       , 1       1.0.4.8.1.255       3/2         35"       , 2       1.0.4.8.2.255       3/2         36"       , 3       1.0.4.8.2.255       3/2         36"       , 3       1.0.4.8.2.255       3/2         37"       , 4       1.0.4.8.2.255       3/2         37"       , 4       1.0.4.8.2.255       3/2         38"       , 5       1.0.4.8.5.255       3/2         39"       , 6       1.	20		, 4	1.0.2.8.4.255	3/2
23'       ,       7       1.0.2.8.7.255       3/2         24'       ,       8       1.0.2.8.255       3/2         25       ,       1.0.2.8.0.255       3/2         26'       ,       1       1.0.3.8.1.255       3/2         27"       ,       2       1.0.3.8.2.255       3/2         28'       ,       3       1.0.3.8.2.255       3/2         29"       ,       4       1.0.3.8.4.255       3/2         30°       ,       5       1.0.3.8.5.255       3/2         31*       ,       6       1.0.3.8.6.255       3/2         32'       ,       7       1.0.3.8.255       3/2         33*       ,       8       1.0.3.8.255       3/2         34*       ,       1       1.0.4.8.1.255       3/2         35"       ,       2       1.0.4.8.2.255       3/2         36"       ,       3       1.0.4.8.2.255       3/2         37"       ,       4       1.0.4.8.2.255       3/2         38"       ,       5       1.0.4.8.5.255       3/2         39"       ,       6       1.0.4.8.6.255       3/2 <td< td=""><td>21*</td><td></td><td>, 5</td><td>1.0.2.8.5.255</td><td>3/2</td></td<>	21*		, 5	1.0.2.8.5.255	3/2
24'       ,       8       1.0.2.8.2.255       3/2         25       ,       1.0.2.8.0.255       3/2         26'       ,       1       1.0.3.8.1.255       3/2         27*       ,       2       1.0.3.8.2.255       3/2         28'       ,       3       1.0.3.8.3.255       3/2         29"       ,       4       1.0.3.8.4.255       3/2         30°       ,       5       1.0.3.8.5.255       3/2         31°       ,       6       1.0.3.8.5.255       3/2         32'       ,       7       1.0.3.8.7.255       3/2         32'       ,       7       1.0.3.8.255       3/2         34*       ,       1       1.0.4.8.1.255       3/2         35"       ,       2       1.0.4.8.2.255       3/2         36"       ,       3       1.0.4.8.2.255       3/2         38"       ,       5       1.0.4.8.5.255       3/2         39"       ,       6       1.0.4.8.5.255       3/2         40"       ,       7       1.0.4.8.7.255       3/2	22'		, 6	1.0.2.8.6.255	3/2
25       ,       1.0.2.8.0.255       3/2         26'       ,       1       1.0.3.8.1.255       3/2         27'       ,       2       1.0.3.8.2.255       3/2         28'       ,       3       1.0.3.8.2.255       3/2         29"       ,       4       1.0.3.8.4.255       3/2         30*       ,       5       1.0.3.8.5.255       3/2         31*       ,       6       1.0.3.8.6.255       3/2         32'       ,       ,       7       1.0.3.8.7.255       3/2         33*       ,       8       1.0.3.8.255       3/2         34*       ,       1       1.0.4.8.1.255       3/2         35"       ,       2       1.0.4.8.2.255       3/2         36"       ,       3       1.0.4.8.2.255       3/2         37"       ,       4       1.0.4.8.4.255       3/2         38*       ,       5       1.0.4.8.5.255       3/2         39*       ,       6       1.0.4.8.6.255       3/2         40'       ,       7       1.0.4.8.7.255       3/2	23'		, 7	1.0.2.8.7.255	3/2
26'       ,       1       1.0.3.8.1.255       3/2         27*       ,       2       1.0.3.8.2.255       3/2         28'       ,       3       1.0.3.8.3.255       3/2         29"       ,       4       1.0.3.8.4.255       3/2         30°       ,       5       1.0.3.8.5.255       3/2         31°       ,       6       1.0.3.8.6.255       3/2         32'       ,       7       1.0.3.8.7.255       3/2         33°       ,       8       1.0.3.8.255       3/2         34*       ,       1       1.0.4.8.1.255       3/2         35"       ,       2       1.0.4.8.2.255       3/2         36"       ,       3       1.0.4.8.2.255       3/2         37"       ,       4       1.0.4.8.4.255       3/2         38*       ,       5       1.0.4.8.5.255       3/2         40'       ,       ,       7       1.0.4.8.7.255       3/2	24'		, 8	1.0.2.8.8.255	3/2
27*       , 2       1.0.3.8.2.255       3/2         28*       , 3       1.0.3.8.3.255       3/2         29"       , 4       1.0.3.8.4.255       3/2         30*       , 5       1.0.3.8.5.255       3/2         31*       , 6       1.0.3.8.6.255       3/2         32*       , 7       1.0.3.8.7.255       3/2         33*       , 8       1.0.3.8.255       3/2         34*       , 1       1.0.4.8.1.255       3/2         35"       , 2       1.0.4.8.2.255       3/2         36"       , 3       1.0.4.8.3.255       3/2         37"       , 4       1.0.4.8.4.255       3/2         39*       , 6       1.0.4.8.6.255       3/2         40*       , 7       1.0.4.8.7.255       3/2         41*       , 7       1.0.4.8.7.255       3/2	25		,	1.0.2.8.0.255	3/2
28'       ,       3       1.0.3.8.3.255       3/2         29"       ,       4       1.0.3.8.4.255       3/2         30*       ,       5       1.0.3.8.5.255       3/2         31*       ,       6       1.0.3.8.6.255       3/2         32'       ,       7       1.0.3.8.7.255       3/2         33*       ,       8       1.0.3.8.255       3/2         34*       ,       1       1.0.4.8.1.255       3/2         35"       ,       2       1.0.4.8.2.255       3/2         36"       ,       3       1.0.4.8.3.255       3/2         37"       ,       4       1.0.4.8.4.255       3/2         39*       ,       6       1.0.4.8.6.255       3/2         40'       ,       ,       7       1.0.4.8.7.255       3/2	26'		, 1	1.0.3.8.1.255	3/2
29"       ,       4       1.0.3.8.4.255       3/2         30*       ,       5       1.0.3.8.5.255       3/2         31*       ,       6       1.0.3.8.6.255       3/2         32'       ,       7       1.0.3.8.7.255       3/2         33*       ,       8       1.0.3.8.255       3/2         34*       ,       1       1.0.4.8.1.255       3/2         35"       ,       2       1.0.4.8.2.255       3/2         36"       ,       3       1.0.4.8.3.255       3/2         37"       ,       4       1.0.4.8.4.255       3/2         38*       ,       5       1.0.4.8.5.255       3/2         40'       ,       7       1.0.4.8.7.255       3/2	27*		, 2	1.0.3.8.2.255	3/2
30*       ,       5       1.0.3.8.5.255       3/2         31*       ,       6       1.0.3.8.6.255       3/2         32'       ,       7       1.0.3.8.7.255       3/2         33*       ,       8       1.0.3.8.255       3/2         34*       ,       1       1.0.4.8.1.255       3/2         35"       ,       2       1.0.4.8.2.255       3/2         36"       ,       3       1.0.4.8.3.255       3/2         37"       ,       4       1.0.4.8.4.255       3/2         38*       ,       5       1.0.4.8.5.255       3/2         39*       ,       6       1.0.4.8.6.255       3/2         40'       ,       7       1.0.4.8.7.255       3/2	28'		, 3	1.0.3.8.3.255	3/2
31*       , 6       1.0.3.8.6.255       3/2         32'       , 7       1.0.3.8.7.255       3/2         33*       , 8       1.0.3.8.8.255       3/2         34*       , 1       1.0.4.8.1.255       3/2         35"       , 2       1.0.4.8.2.255       3/2         36"       , 3       1.0.4.8.3.255       3/2         37"       , 4       1.0.4.8.4.255       3/2         38*       , 5       1.0.4.8.5.255       3/2         39*       , 6       1.0.4.8.6.255       3/2         40'       , 7       1.0.4.8.7.255       3/2         41'       , 7       1.0.4.8.7.255       3/2	29"		, 4	1.0.3.8.4.255	3/2
32'       ,       7       1.0.3.8.7.255       3/2         33*       ,       8       1.0.3.8.255       3/2         34*       ,       1       1.0.4.8.1.255       3/2         35"       ,       2       1.0.4.8.2.255       3/2         36"       ,       3       1.0.4.8.3.255       3/2         37"       ,       4       1.0.4.8.4.255       3/2         38*       ,       5       1.0.4.8.5.255       3/2         39*       ,       6       1.0.4.8.6.255       3/2         40'       ,       ,       7       1.0.4.8.7.255       3/2	30*		, 5	1.0.3.8.5.255	3/2
33*       ,       8       1.0.3.8.8.255       3/2         34*       ,       1       1.0.4.8.1.255       3/2         35"       ,       2       1.0.4.8.2.255       3/2         36"       ,       3       1.0.4.8.3.255       3/2         37"       ,       4       1.0.4.8.4.255       3/2         38*       ,       5       1.0.4.8.5.255       3/2         39*       ,       6       1.0.4.8.6.255       3/2         40'       ,       7       1.0.4.8.7.255       3/2	31*		, 6	1.0.3.8.6.255	3/2
34*     ,     1     1.0.4.8.1.255     3/2       35"     ,     2     1.0.4.8.2.255     3/2       36"     ,     3     1.0.4.8.3.255     3/2       37"     ,     4     1.0.4.8.4.255     3/2       38*     ,     5     1.0.4.8.5.255     3/2       39*     ,     6     1.0.4.8.6.255     3/2       40'     ,     7     1.0.4.8.7.255     3/2       41'     ,     7     1.0.4.8.7.255     3/2	32'		, 7	1.0.3.8.7.255	3/2
35"     ,     2     1.0.4.8.2.255     3/2       36"     ,     3     1.0.4.8.3.255     3/2       37"     ,     4     1.0.4.8.4.255     3/2       38*     ,     5     1.0.4.8.5.255     3/2       39*     ,     6     1.0.4.8.6.255     3/2       40'     ,     7     1.0.4.8.7.255     3/2       41'     9     1.0.4.8.7.255     3/2	33*		, 8	1.0.3.8.8.255	3/2
36"     ,     3     1.0.4.8.3.255     3/2       37"     ,     4     1.0.4.8.4.255     3/2       38*     ,     5     1.0.4.8.5.255     3/2       39*     ,     6     1.0.4.8.6.255     3/2       40'     ,     7     1.0.4.8.7.255     3/2       41'     2     1.0.4.8.9.255     3/2	34*		, 1	1.0.4.8.1.255	3/2
37"     ,     4     1.0.4.8.4.255     3/2       38*     ,     5     1.0.4.8.5.255     3/2       39*     ,     6     1.0.4.8.6.255     3/2       40'     ,     7     1.0.4.8.7.255     3/2       41'     8     1.0.4.8.9.255     3/2	35"		, 2	1.0.4.8.2.255	3/2
38*     ,     5     1.0.4.8.5.255     3/2       39*     ,     6     1.0.4.8.6.255     3/2       40'     ,     7     1.0.4.8.7.255     3/2       41'     8     1.0.4.8.9.255     3/2	36"		, 3	1.0.4.8.3.255	3/2
39* , 6 1.0.4.8.6.255 3/2 40' , 7 1.0.4.8.7.255 3/2	37"		, 4	1.0.4.8.4.255	3/2
40' , 7 1.0.4.8.7.255 3/2	38*		, 5	1.0.4.8.5.255	3/2
A11 9 10 A 9 9 255 2/2	39*		, 6	1.0.4.8.6.255	3/2
41' , 8 1.0.4.8.8.255 3/2	40'		, 7	1.0.4.8.7.255	3/2
	41'		, 8	1.0.4.8.8.255	3/2

Nt	( .)	( .)	OBIS-	
42'		²- , 1	1.0.88.8.1.255	3/2
43'		² . <b>2</b>	1.0.88.8.2.255	3/2
44*		² . <b>3</b>	1.0.88.8.3.255	3/2
45'		²• . <b>4</b>	1.0.88.8.4.255	3/2
46'		². 5	1.0.88.8.5.255	3/2
47"		² . 6	1.0.88.8.6.255	3/2
48"		²• . 7	1.0.88.8.7.255	3/2
49'		²• . 8	1.0.88.8.8.255	3/2
50"			1.0.0.8.6.255	
51"		(tg < ).	1.0.131.6.128.255	3/2
52"		-	1.0.9.3.128.255	3/2
53"		-	1.0.9.6.128.255	3/2
54*		-	1.0.15.3.128.255	3/2
55"		-	1.0.15.6.128.255	3/2
56"		(tg ) -	1.0.137.3.128.255	3/2
57"		(tg ) -	1.0.137.6.128.255	3/2
58"		-	1.0.15.6.129.255	3/2
59"		-	1.0.15.6.130.255	3/2
60"	Time of operation		0.0.96.8.0.255	3/2

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N*	( .}		( .)	OBIS-km	
1	Meter Serial Number			0.0.96.1.0.255	1
2	Device Type			0.0.96.1.1J55	1
3	Firmware Version for meter			0.0.96.1.2.255	1
4"				0.0.96.1.8.255	1
5	Manufacturer name			0.0.96.1.3.255	1
6	Internal CT ratio			1.0.0.4.2.255	1
7	Internal PT ratio			1.0.0.4.3.255	1
	Meter year of manufacture			0.0.96.1.4.255	1
9*				0.0.96.1.5.255	1
10				0.0.96.1.6.255	1
11'		( )		0.0.96.1.9.255	1
12'				0.0.96.1.128.255	1
	1 , *. 2 « «XX.YY*. XX —	»		Octet-String ; YY —	

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N*		OBIS-		( )
1	Opto { 1)	0.0.22.0.0.255	23	9
2	Opto ( 1)	0.0.22.0.0.255	23	2

Nt		OBiS-coA		( )
3	RS-485(nopr 2)	0.1.22.0.0.255	23	9
4	RS-485 ( 2)	0.1.22.0.0.255	23	2
5*	( )	0.2.22.0.0.255	23	9
6'	( )	0.2.22.0.0.255	23	2
7*	( -4)	0.3.22.0.0 J55	23	9
8*	( 4)	0.3.22.0.0.255	23	2
9		0.0.1.0.0.255	8	2
10		0.0.1.0.0.255	8	5
11		0.0.1.0.0.255	8	6
12		0.0.1.0.0.255	8	7
13	-	0.0.1.0.0.255	8	8
14	-	0.0.13.0.0.255	20	7
15	-	0.0.13.0.0.255	20	8
16	-	0.0.13.0.0.255	20	9
17	-	0.0.13.0.0.255	20	10
18		0.0.13.0.0.255	20	1
19"		0.0.15.0.0.255	22	4
20"		0.0.21.0.2.255	7	3
21*		0.0.21.0.2.255	7	4
22		0.0.40.0.2.255	15	7
23		0.0.40.0.3.255	15	2
24"	( 64 }	0.0.96.1.10.255	1	2
25*		1.0.0.4.2.255	1	2
26*	-	1.0.0.4.3.255	1	2
27"		1.0.0.10.2.255	1	2
28		0.0.17.0.0.255	71	3
29		0.0.17.0.0.255	71	6
30		0.0.17.0.1.255	71	6

Nt		OBiS-coA		( )
31	-	0.0.17.0.2 J55	71	6
32	-	0.0.17.0.3.255	71	6
33	( ),%	0.0.17.0.4.255	71	3
34	-	0.0.17.0.4.255	71	6
35		0.0.17.0.5.255	71	3
36	- -	0.0.17.0.5.255	71	6
37		1.0.12.39.0.255	3	2
38		1.0.12.35.0.255	3	2
39	-	1.0.12.31.0.255	3	2
40		1.0.131.35.0.255	3	2
41		1.0.133.35.0.255	3	2
42	-	1.0.0.6.4.255	3	2
43	-	1.0.1.4.0.255	5	8
44	1	1.0.0.8.4.255	1	2
45'	2	1.0.0.8.5.255	1	2
46'		0.0.96.4.1.255	1	2
47*	1	0.0.96.4.2.255	1	2
48*	2	0.1.96.4.2.255	1	2
49*	3	0.2.96.4.2.255	1	2
50*	4	0.3.96.4.2.255	1	2
51	-	1.0.98.1.0.255	7	1
52*		1.0.98.1.0.255	7	2
53	-	1.0.98.2.0.255	7	1
54		0.0.99.98.0.255	7	1

NI         OBIS-COA         ( )           55         0.0.99.98.1.255         7         1           56         / O.0.99.98.2.255         7         1           57         0.0.99.98.2.255         7         1           58*         0.0.99.98.2.255         7         1           60         0.0.99.98.2.255         7         MI           61         0.0.99.98.2.255         7         MI           62*         / 0.0.99.98.2.255         7         MI           62*         / 0.0.99.98.0.255         7         MI           64*         2         1.0.99.10.255         7         MI           65*         3         1.0.99.3.0.255         7         MI           66         0.0.11.0.0.255         11         2           67         0.0.96.3.10.255         1         2           68         0.0.97.98.0.255         1         2           69         0.0.97.98.0.255         1         2           71         0.0.97.98.0.255         1         2           72*         0.0.128.10.255         1         2           72*         0.0.128.10.255         1         2           74*		.2		т	
56       /       0.0.99.98.2.255       7       1         57       0.0.99.84.255       7       1         58*       0.0.99.98.5.255       7       1         59*       0.0.99.98.5.255       7       MI         60       0.0.99.98.255       7       MI         61       0.0.99.98.255       7       MI         62*       /       0.0.99.98.10.255       7       MI         64*       2       1.0.99.10.255       7       MI         65*       3       1.0.99.20.255       7       MI         66       0.0.11.0.0.255       11       2         67       0.0.96.3.10.255       70       4         68       0.0.97.98.0.255       1       2         69       0.0.97.98.0.255       1       2         70       0.0.97.98.0.255       1       2         72*       0.0.128.1.0.255       1       2         72*       0.0.128.1.0.255       1       2         74*       0.—       1       0.0.97.82.0.255       1       2         76*       0.0.96.3.2255       1       2       1       2         76*       0.0.96.3.255	Nt		OBiS-coA		( )
56       0.099.98.2.255       7       1         57       0.099.98.2.255       7       1         58°       0.099.98.5.255       7       1         59°       0.099.98.2.255       7       MI         60       0.099.98.2.255       7       MI         61       0.099.98.2.255       7       MI         62°       0.099.98.10.255       7       MI         63       1       1.0.99.10.255       7       MI         64°       2       1.0.99.20.255       7       MI         65°       3       1.0.99.3.0.255       7       MI         66       0.011.0.255       11       2         67       0.096.3.10.255       70       4         68       0.0.96.3.10.255       1       2         69       0.097.98.0.255       1       2         70       0.097.98.0.255       1       2         71       0.097.98.20.255       1       2         72°       0.0128.1.0.255       1       2         73°       0.0128.1.0.255       1       2         74°       0.07       0.096.1.7.255       1       2         76°	55		0.0.99.98.1.255	7	1
57     0.9.99.84.255     7     1       58°     0.0.99.98.5.255     7     1       59°     0.0.99.98.6.255     7     MI       60     0.0.99.98.255     7     MI       61     0.0.99.98.8.255     7     MI       62°     / 0.0.99.98.10.255     7     MI       63     1     1.0.99.10.255     7     MI       64°     2     1.0.99.20.255     7     MI       65°     3     1.0.99.30.255     7     MI       66     0.0.11.0.0255     11     2       67     0.0.96.3.10.255     70     4       68     0.0.97.98.0255     1     2       70     0.0.97.98.0255     1     2       71     0.0.97.98.20.255     1     2       72°     0.0.128.10.255     1     2       73°     0.0.128.10.255     1     2       74°     0—1     0.0.96.3.2255     1     2       76°     0.0.96.3.2255     1     2       77°     (cos <)	56	<i>l</i> -	0.0.99.98.2.255	7	1
59°       0.0.99.98.6.255       7       MI         60       0.0.99.98.9.255       7       MI         61       0.0.99.98.255       7       MI         62°       0.0.99.98.10.255       7       MI         63       1       1.0.99.10.255       7       MI         64°       2       1.0.99.20.255       7       MI         65°       3       1.0.99.3.0.255       7       MI         66       0.0.11.0.0.255       11       2         67       0.0.96.3.10.255       70       4         68       0.0.97.98.0.255       1       2         70       0.0.97.98.0.255       1       2         71       0.0.97.98.0.255       1       2         71       0.0.97.98.0.255       1       2         72°       0.0.128.1.0.255       1       2         73°       0.0.128.2.0.255       1       2         74°       0.0.1       0.0.96.1.7.255       1       2         76°       0.0.96.3.2.255       1       2         77°       0.0.96.3.2.255       1       2         77°       0.0.96.3.2.255       1       2         <	57	-	0.0.99.98.4.255	7	1
69       0.099,98,0.255       7       1         61       0.099,98,0.255       7       MI         62*       / 0.099,98,0.255       7       MI         63       1       1.099,1.0.255       7       MI         64*       2       1.099,2.0.255       7       MI         65*       3       1.099,3.0.255       7       MI         66       0.011,0.0255       11       2         67       0.096,3.10,255       70       4         68       0.096,3.10,255       1       2         69       0.097,98,0.255       1       2         70       0.097,98,0.255       1       2         71       0.097,98,0.255       1       2         72*       0.0128,1.0,255       1       2         73*       0.0128,1.0,255       1       2         74*       0	58"		0.0.99.98.5.255	7	1
61       0.0.99.98.8.255       7       MI         62*       / 0.0.99.81.0.255       7       MI         63       1       1.0.99.1.0.255       7       MI         64*       2       1.0.99.2.0.255       7       MI         65*       3       1.0.99.3.0.255       7       MI         66       0.0.11.0.0.255       11       2         67       0.0.96.3.10.255       70       4         68       '       0.0.96.5.3.255       1       2         70       0.0.97.98.0.255       1       2         70       0.0.97.98.0.255       1       2         71       0.0.97.98.0.255       1       2         72*       0.0.128.10.255       1       2         73*       0.0.128.10.255       1       2         74*       0	59*	-	0.0.99.98.6.255	7	1
62*       / 0.099.98.10.255       7       MI         63       1       1.0.99.10.255       7       MI         64*       2       1.0.99.20.255       7       MI         65*       3       1.0.99.30.255       7       MI         66       0.0.11.0.0255       11       2         67       0.096.3.10.255       70       4         68       0.097.98.0.255       1       2         69       0.097.98.0.255       1       2         70       0.097.98.0.255       1       2         71       0.097.98.0.255       1       2         72*       0.0128.10.255       1       2         73*       0.0128.10.255       1       2         74*       0—1       0.096.1.7.255       1       2         76*       0.096.3.2.255       1       2         76*       0.096.3.2.255       1       2         77*       (cos < )	60		0.0.99.98.9.255	7	MI
62"  63	61		0.0.99.98.8.255	7	MI
64*       2       1.0.99.2.0.255       7       MI         65*       3       1.0.99.3.0.255       7       MI         66       0.0.11.0.0.255       11       2         67       0.0.96.3.10.255       70       4         68       0.0.96.5.3.255       1       2         69       0.0.97.98.0.255       1       2         70       0.0.97.98.0.255       1       2         71       0.0.97.98.0.255       1       2         72*       0.0.128.1.0.255       1       2         73*       0.0.128.1.0.255       1       2         74*       0—1—1       0.0.96.1.7.255       1       2         76*       0.0.96.3.2.255       1       2         76*       0.0.96.3.2.255       1       2         77*       (cos < )	62*	I	0.0.99.98.10.255	7	MI
65°       3       1.0.99.3.0.255       7       MI         66       0.0.11.0.0.255       11       2         67       0.0.96.3.10.255       70       4         68       0.0.97.98.0.255       1       2         69       0.0.97.98.0.255       1       2         70       0.0.97.98.10.255       1       2         71       0.0.97.98.20.255       1       2         72°       0.0.128.10.255       1       2         73°       0.0.128.20.255       1       2         74°       0—1—1—       0.0.96.1.7.255       1       2         75       0.0.135.210.0.255       1       2         76°       0.0.96.3.2.255       1       2         77°       (cos < )	63	1	1.0.99.1.0.255	7	MI
66       0.0.11.0.0.255       11       2         67       0.0.96.3.10.255       70       4         68       0.0.96.5.3.255       1       2         69       0.0.97.98.0.255       1       2         70       0.0.97.98.10.255       1       2         71       0.0.97.98.20.255       1       2         72*       0.0.128.10.255       1       2         73*       0.0.128.20.255       1       2         74*       0-1-1-       0.0.96.1.7.255       1       2         75       0.0.135.210.0.255       1       2         76*       0.0.96.3.2.255       1       2         77*       (cos < )	64*	2	1.0.99.2.0.255	7	MI
67       0.0.96.3.10.255       70       4         68       .       0.0.96.5.3.255       1       2         69       0.0.97.98.0.255       1       2         70       0.0.97.98.10.255       1       2         71       0.0.97.98.20.255       1       2         72°       0.0.128.10.255       1       2         73°       0.0.128.20.255       1       2         74°       0—1—       0.0.96.1.7.255       1       2         75       0.0.135.210.0.255       1       2         76°       0.0.96.3.2.255       1       2         77°       (cos < )	65*	3	1.0.99.3.0.255	7	MI
68	66		0.0.11.0.0.255	11	2
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70       0.0.97.98.10.255       1       2         71       0.0.97.98.20.255       1       2         72*       0.0.128.1.0.255       1       2         73*       0.0.128.2.0.255       1       2         74*       0—1—       0.0.96.1.7.255       1       2         75       0.0.135.210.0.255       1       2         76*       0.0.96.3.2.255       1       2         77*       (cos < )	68	,	0.0.96.5.3.255	1	2
71       0.0.97.98.20.255       1       2         72*       0.0.128.10.255       1       2         73*       0.0.128.2.0.255       1       2         74*       0 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	69		0.0.97.98.0.255	1	2
72*     0.0.128.1.0.255     1     2       73*     0.0.128.2.0.255     1     2       74*     0 1 1 1 1 1 1 1	70		0.0.97.98.10.255	1	2
73*       0.0.128.2.0.255       1       2         74*       0 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	71		0.0.97.98.20.255	1	2
74*       0 — 1 —       ):       0.0.96.1.7.255       1       2         75       -       0.0.135.210.0.255       1       2         76*       0.0.96.3.2.255       1       2         77*       (cos < )	72*		0.0.128.1.0.255	1	2
74*       0 — 1 —       0.0.96.1.7.255       1       2         75       — 0.0.135.210.0.255       1       2         76*       — 0.0.96.3.2.255       1       2         77*       (cos < )	73*		0.0.128.2.0.255	1	2
75       0.0.135.210.0.255       1       2         76*       0.0.96.3.2.255       1       2         77*       (cos < )	74*	): 0 —	0.0.96.1.7.255	1	2
77*       (cos < )	75	-	0.0.135.210.0.255	1	2
78* 1 (! ))	76*		0.0.96.3.2.255	1	2
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Nt		OBiS-coa		( )
81	(tg )	1.0.131.44.0.255	3	2
82	. % -	1.0.91.44.132.255	3	2
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84*		0.0.135.200.0.255	1	2

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	99.98.1.255	100/256		0.0.1.0.0.255 0.0.96.11.1.255 0.0.96.8.0.255	8)2 12 32
1	99.98.2.255	100/256		0.0.1.0.0.255 0.0.96.11.2.255 0.0.96.8.0.255	82 12 32
	99.98.3.255	100/1024	( )	0.0.1.0.0.255 0.0.96.11.3255 0.0.96.12.4.255 0.0.96.8.0.255	82 12 12 32
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*	99.98.5.255	100/128	( )	0.0.1.0.0.255 0.0.96.11.5.255 0.0.96.12.4.255 0.0.96.12.6.255 0.0.96.8.0.255	82 12 12 12 12
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	99.98.7.255	100/256		0.0.1.0.0.255 0.0.96.11.7.255 0.0.96.8.0.255	82 12 32
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	OBIS-	, ? «	OBIS'KM /
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			1.0.88.8.1.255 /2
			1* 1.0.88.8.2.255 3/2
			2* 1.0.88.8.3.255 3/2
			3* 1.0.88.8.4.255 3/2
*	0.0.99.98.14.255	3	* 1.0.88.8.0.255 3/2 1.0.89.8.1.255 3/2
			, 1 1.0.89.8.2.255 3/2
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			, 3 1.0.89.8.4.255 3/2
			, 4 1.0.89.8.0.255 3/2
			0.0.96.8.0.255 3/2
			0.0.1.0.0.255 2/8 1.0.147.133.0.255 3/2
	0.0.99.98.15.255	36/36	1.0.148.36.0.255 3/2
			0.0.96.8.0.255 3/2
	1.0.94.7.6.255	5	0.0.1.0.0.255 8/2 0.0.96.11.0.255 1/2 0.0.96.11.2.255 1/2
			0.0.96.11.4.255 1/2

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0x01	10 %
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0x04	
0x08	10 %
0x10	0.4
0x20	0.2
0x40	0.2
0x60	0.4

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0x0001	1	
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(1]	62056 (	. DLMS/COSEM
		(Electricity metering data exchange — The DLMS/COSEM suite)
(2]	62056-1*0	. DLMS/COSEM.
		1-0. (Electricity metering data exchange — The DLMS/COSEM suite — Part 1-0: Smart metering standardisation framework)
[3]	62056*21	
		. 21. (Electricity metering — Data exchange for meter reading, tariff and load control — Part 21: Direct local data exchange)
1	62056-42	. 42.
		(Electricity metering — Data exchange for meter reading, tariff and load control — Part 42: Physical layer services and procedures for connection-oriented asynchronous data exchange)
[5]	62056-46	
		HDLC (
		) (Electricity metering — Data exchange for meter reading, tariff and load control — Part 46: Data link layer using HDLC protocol)
[6]	62056-4-7	. DLMS/COSEM. 4-7. DLMS/COSEM IP- (Electricity metering
		4-7. DLMS/COSEM IP- (Electricity metering data exchange — The DLMS/COSEM suite — Part 4-7: DLMS/COSEM transport layer for IP networks)
[	62056-5-3	DLMS/COSEM.
		5-3. DLMS/COSEM (Electrcity metering data exchange — The DLMS/COSEM suite — Part 5-3: DLMS/COSEM application layer)
[8]	62056-6-1	. DLMS/COSEM. 6-1. (OBIS) [Electricity metering data
19]	62056-6-2	exchange — The DLMS/COSEM suite — Part 6-1: Object Identification System (OBIS)]  DLMS/COSEM.
-		6-2. COSEM (Electricity metering data exchange — The DLMS/COSEM suite — Part 6-2: COSEM interface classes)
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	04004.0	[Information technology — Telecommunications and information exchange between systems — High-level data link control (HDLC) procedures]
[11]	61334-6	. 6. A-XDR
		(Distribution automation using distribution line carrier systems — Part 6: A-XDR encoding rule)
(12]	ISO/I 60559:201	
		(information technology — Microprocessor Systems — Floating-Point arithmetic)
(13]	DLMS UA1000-1	COSEM OBIS
,. <b>-</b> 1		(COSEM Interface Classes and OBIS Object Identification System)
(14] (15]	DLMS UA1000-2 26.4.003-2019	DLMS/COSEM (DLMS/COSEM Architecture and Protocols)
		DLMS. 26
(16]		DLMS. 26
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