



**МЭК  
62660-2-2014**

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**IEC 62660-2:2010  
Secondary lithium-ion cells for the propulsion of electric road vehicles -  
Part 2: Reliability and abuse testing  
(IDT)**



2015

62660-2—2014

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2 044 « »

3 08 2014 . 1011- -

4 62660-2 (2010) « -  
 2. -  
 » (IEC 62660-2:2010 «Secondary lithium-ion cells for the  
 propulsion of electric road vehicles — Part 2: Reliability and abuse testing»). -  
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6 , 4, -  
 ( ) -

1 ) — « 1.0—2012 ( ) .  
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 (gost.ru)

© , 2015

1	.....	1
2	.....	1
3	.....	2
4	.....	2
4.1	.....	2
4.2	.....	2
4.3	.....	3
4.4	.....	3
5	.....	4
5.1	.....	4
5.2	.....	4
5.3	.....	4
6	.....	4
6.1	.....	5
6.2	.....	7
6.3	.....	12
7	.....	13
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Secondary lithium-ion cells for the propulsion of electric road vehicles.  
Part 2. Reliability and abuse testing

— 2016—01—01

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2 —  
12405-1 12405-2.

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)  
60050-482 482.  
(IEC 60050-482, International Electrotechnical Vocabulary — Part 482: Primary  
and secondary cells and batteries)  
60068-2-64 2-64.  
Fh. (IEC 60068-2-64, Environmental testing —  
Part 2-64: Tests — Test Fh: Vibration, broadband random and guidance)  
61434  
(1 61434, Secondary cells and batteries containing alkaline or other -acid electrolytes —  
Guide to the designation of current in alkaline secondary cell and battery standards)

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16750-3

3. (ISO 16750-3, Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 3: Mechanical loads)

16750-4

4. (ISO 16750-4, Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 4: Climatic loads)

### 3

60050-482,

3.1 ; (battery electric vehicle; BEV): -

3.2 ; (hybrid electric vehicle; HEV): ,

3.3 (rated capacity): - , -

3.4  $I_{ref}$  (reference test current /,): ,

$$W = Cn/1 ,$$

$C_{rt}$  ;

1 — ; ;  
3.5 (room temperature): (25 ± 2) °C.

3.6 - (secondary lithium ion cell): ,

1—

2 —

3.7 ; (state of charge; SOC): -

### 4

4.1

4.2

4.2.1

4.2.2

1 / .

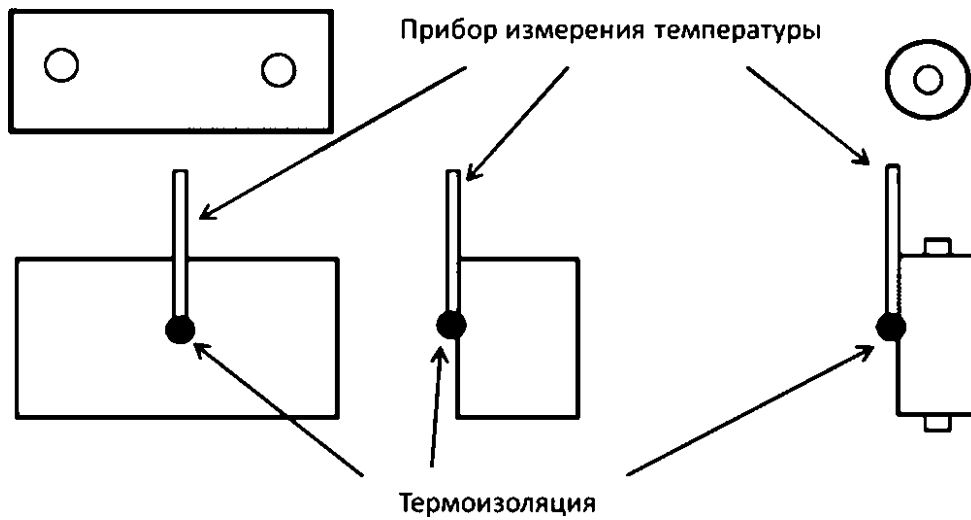
4.2.3

0,5

4.2.4

4.2.1.

1.



4.2.5

4.3.

4.3

- a)  $\pm 0,1 \%$
- b)  $\pm 1 \%$
- c)  $\pm 2 \text{ }^\circ\text{C}$
- d)  $\pm 0,1 \%$
- e)  $\pm 0,1 \%$
- f)  $\pm 0,1 \%$

4.4

12

1

1  $^\circ\text{C}$ .

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**5**

5.1

1,

5.2

1.

5.1.

4.4.

2.

1.

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61434.

1—

, °C		
0	1/3l,	1 h
25		
45		

3.

( - )

5.3

1.

5.1.

2.

4.4.

3.

1

-(100 - )/100 3

-(100 - )/100 1

**6**

6.1

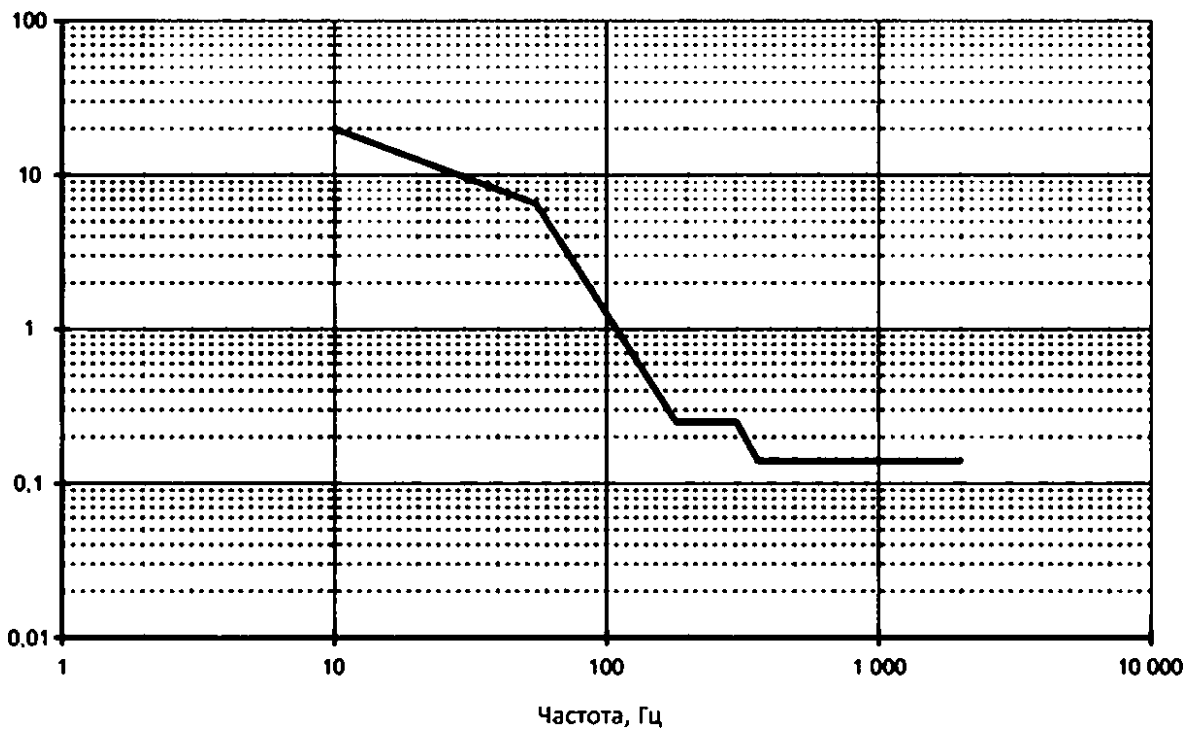
6.1.1

6.1.1.1

a) 100 % 5.3 -  
80 % — -

b) 60068-2-64. 8 -

c) 27,8 / 2. 2. -  
( ) 2000



2 —

2 —

	( / 0 <sup>2</sup> ) /
10	20,00
55	6,50
180	0,25
300	0,25
360	0,14
1000	0,14
2000	0,14



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6.1.1.2

:

-

6.1.2

6.1.2.1

a)

100 %

5.3

80 % —

b)

16750-3

3.

3—

	500 / 2
	6
	10
—	-

6.1.2.2

:

-

6.1.3

6.1.3.1

a)

100 %

5.3

80 % —

b)

150

/

/

—

(

3).

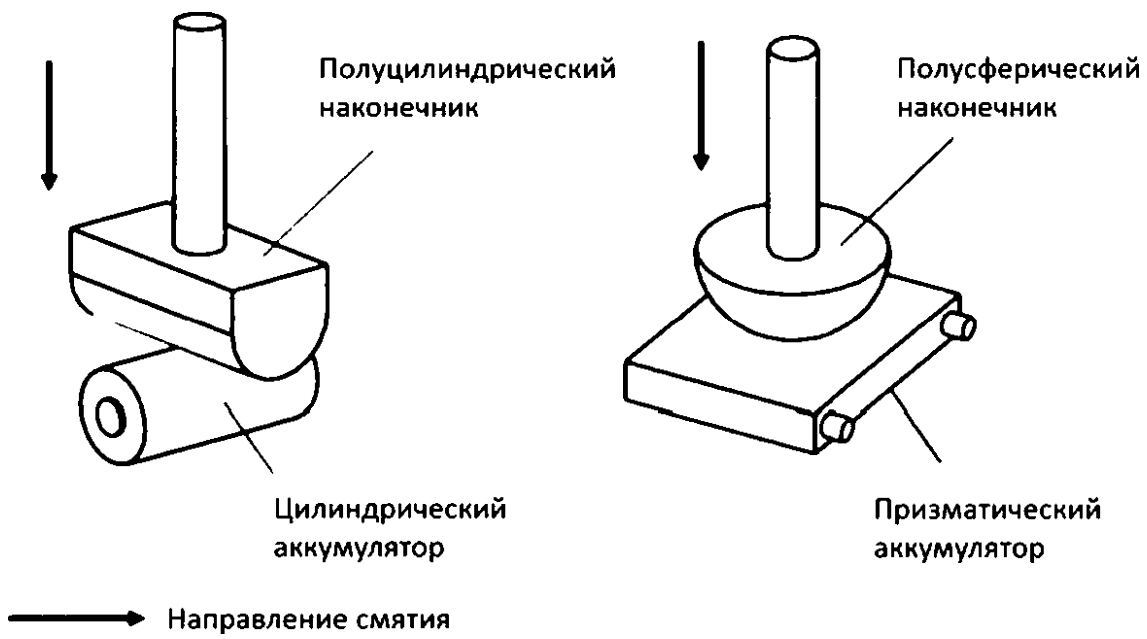
c)

15 %

24

1000

20 %



3—

6.1.3.2

;  
-  
-  
-  
-  
-

7.

6.2

6.2.1

6.2.1.1

a)

™

100 %  
80 % —

5.3

b)

5 ° /  
30

(130 ± 2) °C.

6.2.1.2

7.

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6.2.2

6.2.2.1

6.2.2.1.1

6.2.2.1.2

6.2.2.1.1

a)

100 %

5.3

80 % —

b)

16750-4

4.

40 °C

85 °C

30

4 —

	°C
0	25
60	
150	<i>Ttrtn</i>
210	25
300	7<
410	
480	25

6.2.2.1.2

a)

80 %

5.3

60 % —

b)

16750-4

5.

20 °C,

65 °C.

c)

4

6 —

-

6

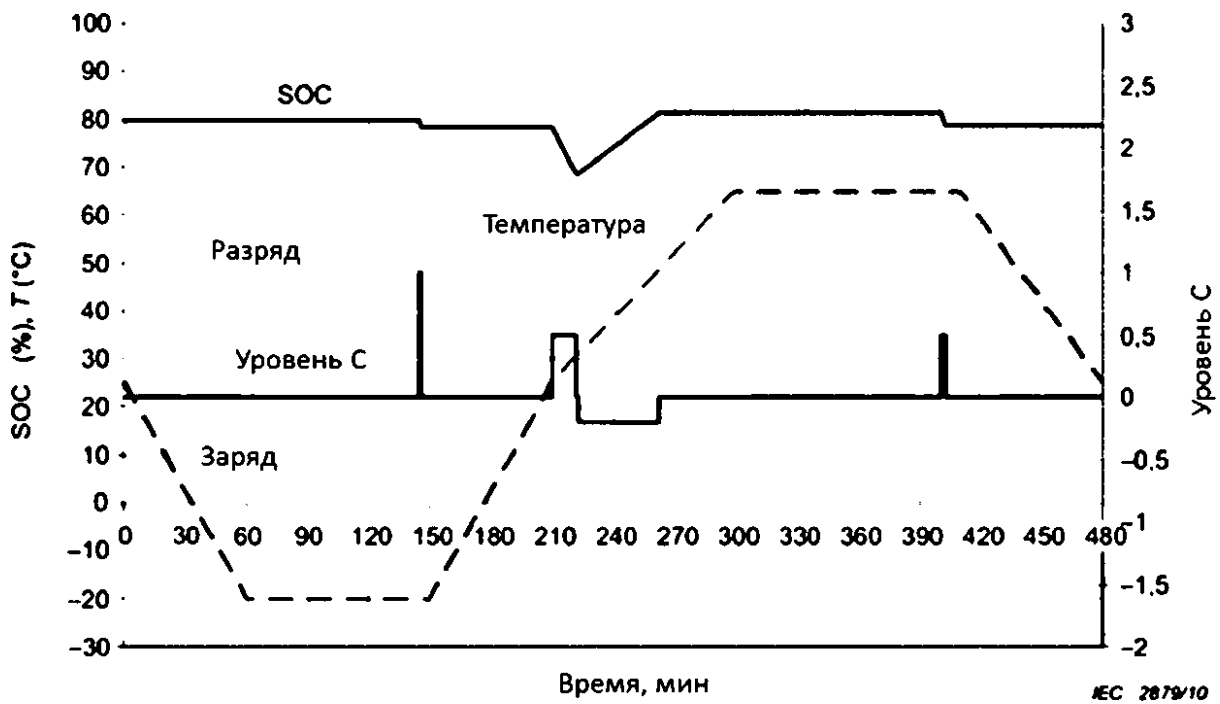
7 —

d)

30

5—

Время, мин	Температура, °C
0	25
60	-20
150	-20
210	25
300	65
410	65
480	25



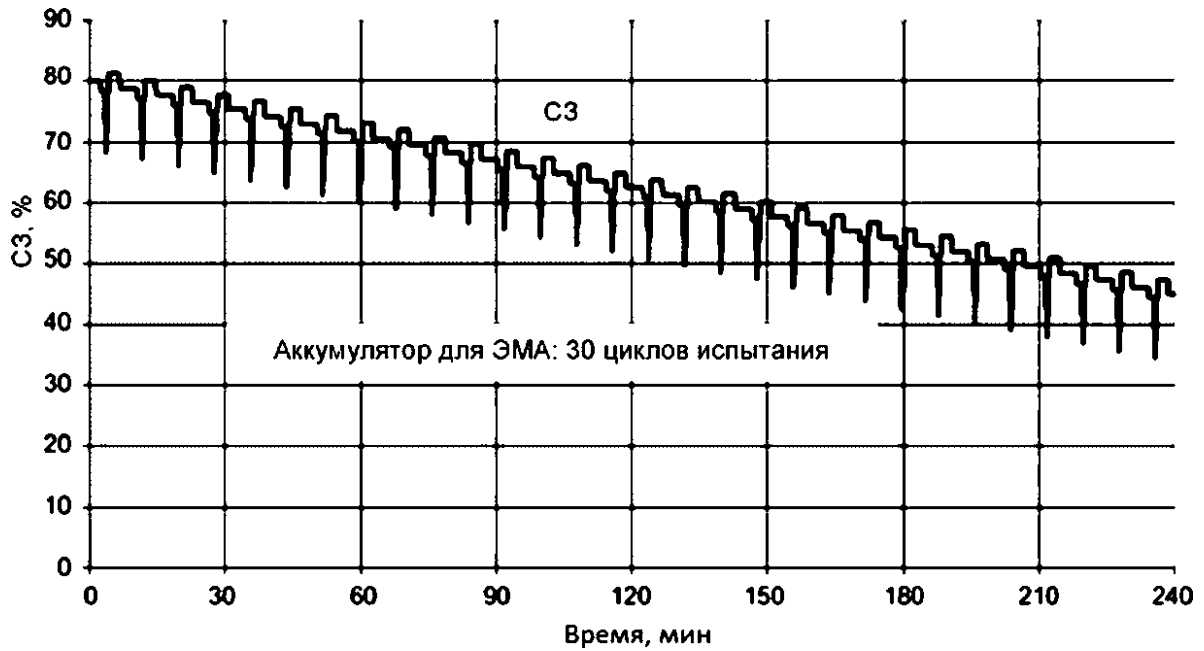
4—

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6 —

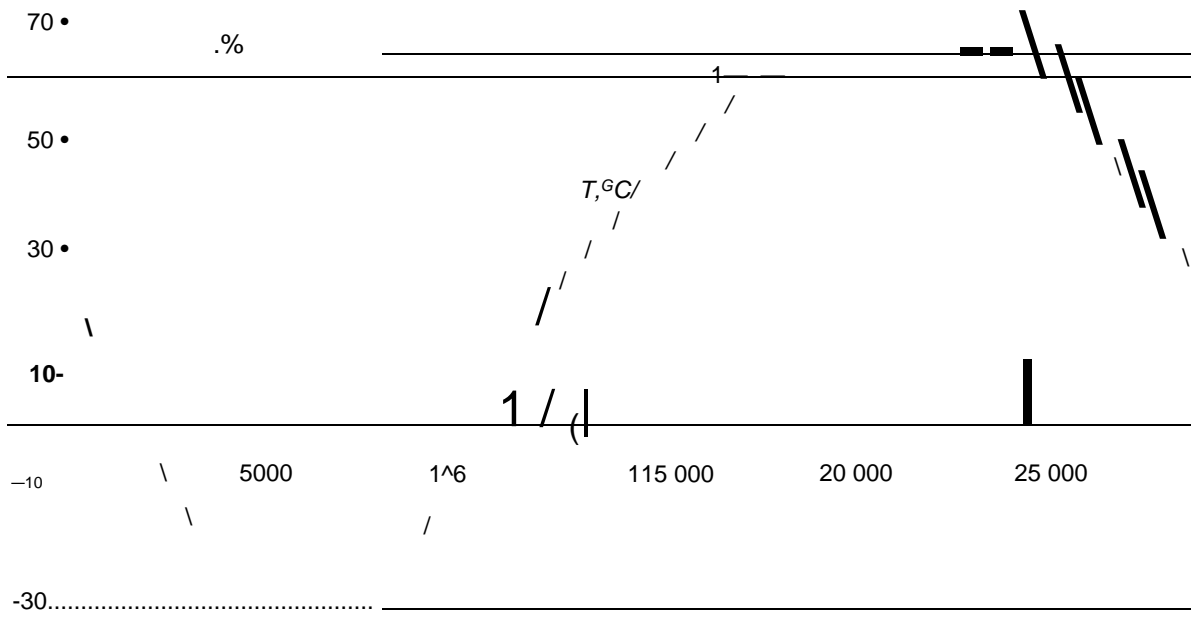
				, %	.%	
	0	0	0		80	
1	145	145	0	0	80	
2	1	146	1	-1,67	78,33	1
3	64	210	0			
4	12	222	0,5	-10	68,33	12
5	1	223	0			
6	39	262	-0,2	13	81,33	
7	138	400	0			
8	3	403	0,5	-2,5	78,83	3
9	77	480	0		78,83	

5



5 —

10



6 —

7 —

				%	%	
	0	0	0		60	
1	8700	8700	0		60	
2	5	8705	10	-1,39	58,61	5
3	5695	14400	0			
4	10	14410	-10	2,78	61,39	
5	590	15000	0			
6	120	15120	-5	16,7	78,09	2
7	480	15600	0			
8	120	15720	5	-16,7	61,39	2
9	8580	24300	0			
10	5	24305	10	-1,39	60	5
11	4495	28800	0		60	

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6.2.2.2

- ;  
 - — 7;  
 - , .

6.3

6.3.1

6.3.1.1

a) ™ 100 % 5.3.  
 b) , ) ,

5 10 . -

6.3.1.2

( — 10 ):

- ;  
 - . -  
 , 4.3, ;  
 - ;  
 - — 7.

6.3.2

6.3.2.1

a) ™ 100 % 5.3.  
 b) 100 % ™ 1/ℓ , 5/ℓ ,

200 % ™ .

6.3.2.2

- ;  
 - ;  
 - — 7.

6.3.3

6.3.3.1

1/ℓ 90 .

6.3.3.2

- ;  
 - ;  
 - — 7.

7

8.

8—

) ( -	/ , -
	( )
) ( -	, - ( ) , -



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( )

5.2. , .1, .  
 .1 —

.									
	0.2	1/3/	1/.	5	0.2	1/3/	1		
-20									
0									
25									
45									

, 1, (1/3 I<sub>t</sub> 1 )

( )

( )

1

60050-482	IDT	60050-482-2011 « - »
60068-2-64	MOD	30630.1.9-2002 ( 60068-2-64.1993) « - - - - »
61434	-	
16750-3	-	
16750-4	-	*
<p>•</p> <p>• IDT — ;</p> <p>- MOD —</p>		

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62660-1	-	1.
(IEC 62660-1)	(Secondary lithium-ion cells for the propulsion of electric road vehicles — Part 1: Performance testing)	
12405-1	-	1.
(ISO 12405-1)	(Road vehicles — Electrically propelled road vehicles — Test specification for lithium-ion battery packs and systems — Part 1: High power application)	
12405-1	-	2.
(ISO 12405-2)	(Road vehicles — Electrically propelled road vehicles — Test specification for lithium-ion battery packs and systems — Part 2: High energy application)	

621.355.9:006.354

29.220.20  
43.120

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34 8290

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03.03.2015. 60x84%.  
. . . 2,33. 31 . . 1062

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123995 . . . 4.  
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