

6. Olsen, R. G. A comparison of exact and quasi-static methods for evaluating grounding systems at high frequencies / R. G. Olsen, M. C. Willis // IEEE Trans. Power Del. – 1996. – Vol. 11, 2. – P. 1071–1081.

7. ... // ... – 2009. – 4. – .12–18.

8. Liu, Y. An engineering model for transient analysis of grounding system under lightning strikes : nonuniform transmission-line approach / Y. Liu, N. Theethayi, R. Thottappillil // IEEE Trans. Power Del. – 2005. – Vol. 20, 2. – P. 722–730.

9. Velazques, R. Analytical modeling of grounding electrodes transient behavior / R. Velazques, D. Mukhedkar // IEEE Trans. Power Apparatus and System. – 1984. – Vol. PAS–103, 6. – P. 1314–1322.

10. ... [ ... ] // ... – 2004. – 1. – .13–16.

11. ... [ ... ] // ... – 2009. – 2. – .11–20.

12. ... // ... ( ... ) ... – 2011. – 2. – .22–29.

13. ... / ... ; ... – ... , 1965. – 780 .

30.05.2011

621.313.333

• • , • • • ”

( ) [1–3].

• ,

• , — -

• , -

• ,

• .

( ) :

• , ; (

• );

• ;

• .

• , -

• . ( ) , -

• , . -

• , , -

• , , -

• , -

• , , ( ) )

[4]. , -

• , -

• ,

• ,

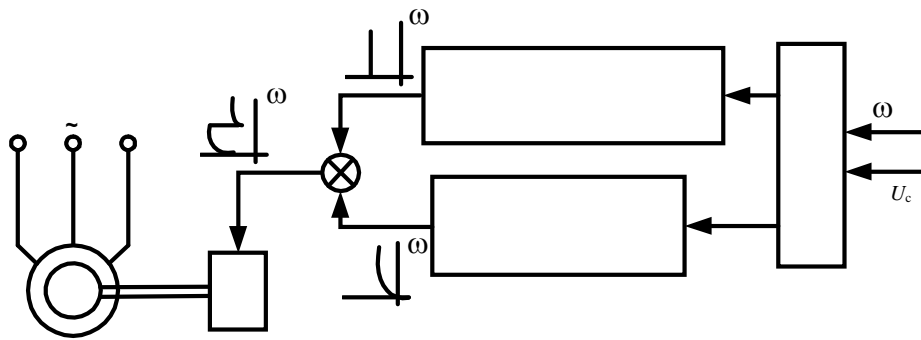
( , )

• , -

• , -

• , -

. 1.



.1.

•  
•  
•  
•

:

;

;

;

ω

ω

1)

[4], . . .

( . . ω = 0,5ω ),

4

$$N \sim \frac{1}{\omega^2},$$

$N -$

(

); ω -

(

);

2)

3)

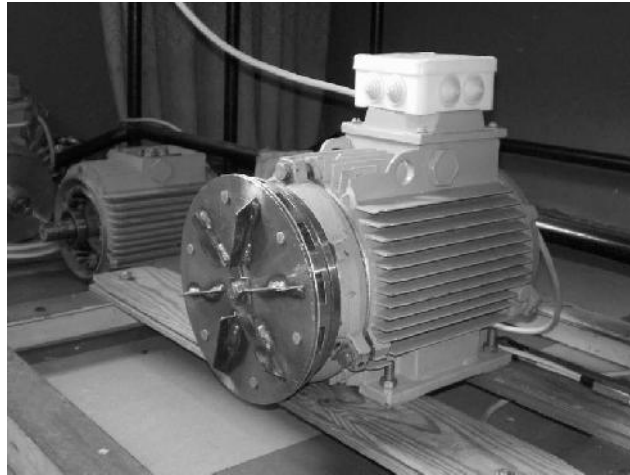
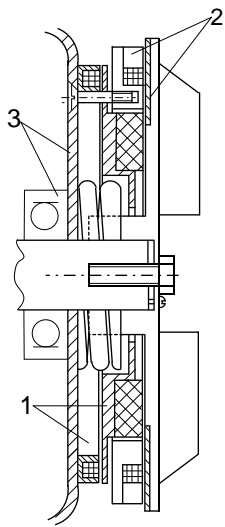
4)

5)

6)

)

. 2



. 2.

( ) ( )

3

1.

-  
-  
-  
-  
2.  
-

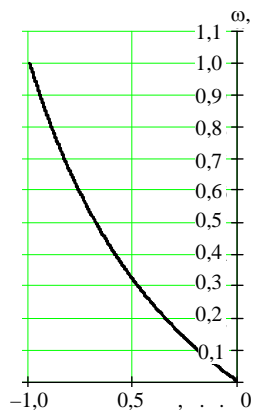
. 3

. 4

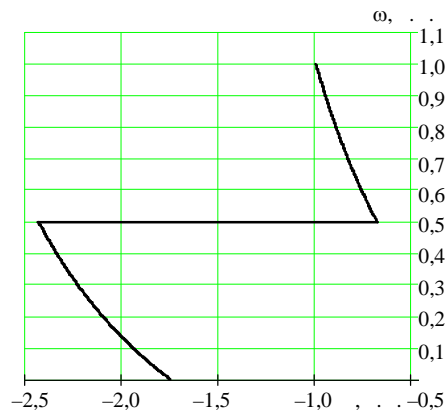
90 ( = 1420 / ).

(

$\omega = 0,5\omega$ ).



. 3.



. 4.

90

, « -  
 » -  
 . . .  
 ( . 2). -  
 -  
 .  
 101.12.24.000000 « »  
 « ».

1. / . . . , . . . // ... ( . . . . . ) . - 2004. - 4. - . 28-32.
2. . . . , 1971. - 96 . / . . . ,
3. K a r l, E. Brinkmann GmbH. Electromagnetic technology – www.keb.de. 2010. – 8. – 52 .
4. , . . . / . . . , . . . - . - : , 1985. – 312 .
5. , . . . // . . . . - 2004. - 3. - . 33-36.
6. , . . . / . . . , . . . // ... ( . . . . . ) . - 2009. - 4. - . 31-36.

25.05.2011

621.019

. . . , . . . “ ” . . .  
 . . . “ ” . . .  
 . . .  
 ( , )  
 ( - ),  
 ,  
 .  
 ( ).