, S   I

l,	,	f_0,	y ,	S , ·	I ,	I ,
$U = 110$, -500/27							
20	2,5	1	1,01	181	19,5	25,3
27,5	2,5	1,38	1,01	232	18,8	22,0
$U = 220$, -500/27							
30,8	4	1,85	1,51	328	26,6	25,3
40,5	4	2,43	1,51	278	21,4	22,1
$U = 330$, 2 -500/27							
48	4,5	2	1,29	640	31,6	37,0

1.   -
                                    ,   -   -
                                 ,   -
                                 .

2. k k_y ,   -
                                                                                                                      .

1. T h e   m e c h a n i c a l   effects of short-circuit currents o en-air substations (rigid or flexi-
ble bus-bars). Brochure from CIGRE. SC 23. –   aris, 1996.
2.   30323–95.   :   -
                                                                           . –   . 01.03.1999. –
.: 1999. – 57 .
3.   . .,   . .
                              //   . – 1993. –   5. – . 17–25.
4.   . .,   . .   -
                                 :   . –   .:   -
     , 1999. – 252 .
5.   . .,   . .,   .   -
                                                                                                      -
                                                                     //   … (.   .
 .   .   ). – 2004. –   2. – . 5 – 11.
6.   . .,   . .,   .   -
                                                  //   … (.   .   .
  .   ). – 2004. –   4. – . 5–9.

11.12.2004

518.1

                    ·   · ·,   ·   ·   ,   ·   · ·
                                        -

                                                                                                       -
                                        (   )   -
                                                                                                       -
                                      (   ).   -
                                      .   -

,
,

[1].

,   .

,

[2].   –

,

.

,

,   :

,

= 0.

. 1.

. *1*

x = 0   x = x₁   x = 1   x

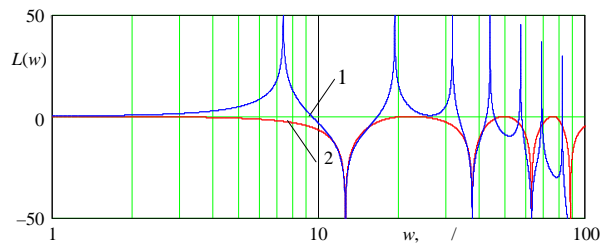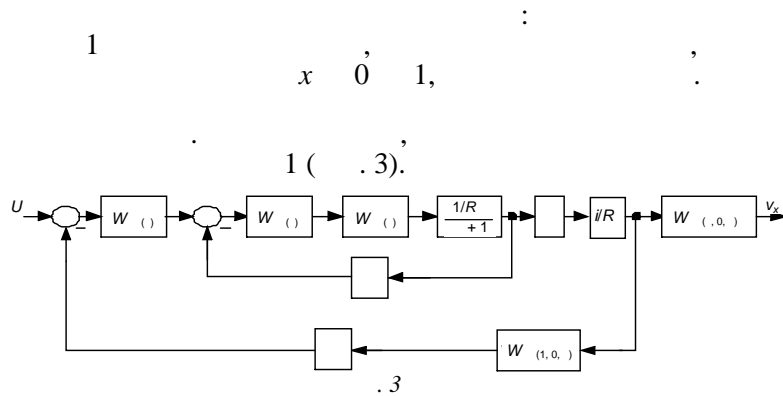( )   ,
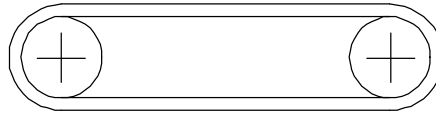
= 0,   = x₁,   [3]

$$W(x_1, 0, p) = \frac{\operatorname{ch}\left((1 - x_1)p\frac{L}{a}\right)}{\operatorname{sh}\left(p\frac{L}{a}\right) + p\frac{L}{a}\mu\operatorname{ch}\left(p\frac{L}{a}\right)},$$
(1)

L –   ,   ; x_1 –

,   . .;   –

,   / ; μ –

. .; p –   .

–

( )   (. 2,   1) –

,   :

$$L(w) = 20\log\big(|W(x_1, 0, iw)|\big).$$
(2)

, L, a, μ.

. *2*

19

( ).   ,

.   -

,   .

0   1   -

. $x = 0$

$x = 1,$ -

(1) $x_1 = 0$ $x_1 = 1.$

$$W(x, 0, p) = \frac{W\ (x, 0, p)}{1 + W\ (0; 1, 0, p)}.\tag{3}$$

:

1   ,   ,

x 0   1,   .

-

.   -

1 (. 3).

. 3

( )   ( ),   ,   -

,   ,   _   (

$x = 1)$.

$$W\quad (x, 0, p) = \frac{W\ (x, 0, p)}{W\ (1, 0, p)(1 + 8T_\mu^2 p) + (4T_\mu + 8T_\mu^3 p^2)},\tag{4}$$

μ —

(. 2,   2)   ,

.

.

(1)   -

_ p j ,   .   ,   -

:

$$\sin\left(\omega \frac{L}{a}\right) + \omega \frac{L}{a}\mu\cos\left(\omega \frac{L}{a}\right) = 0;\tag{5}$$

$$\omega = \frac{\pi(1 + 2n)}{2\frac{L}{a}(1 - e)}, \quad n \in \mathbf{N}.\tag{6}$$

(5) –   , (6) –   .   (5)   (6)
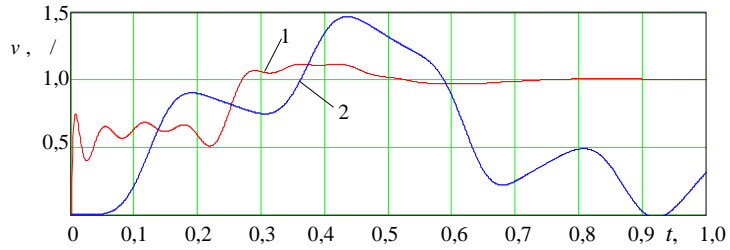
$L, a, e, \mu.$

(4)

,   MathCad, MatLab,   -

_   .

20

$$(\omega^2 + \omega_1^2)(\omega^2 + \omega_2^2)\ldots / \omega_1^2 \omega_2^2\ldots, \qquad (7)$$

$\omega_1, \omega_2, \ldots -$

(6)

(7)

$(\delta = 0{,}5; L = 10 \quad; a = 40 \quad / ; \mu = 5)$

. 4 (1).

. 4 (2)

MathCad 2000 Professional.

. 4

: $- 10 \%,$ $- 0{,}45$.

: (5) ,

$(, L, a, \mu)$

1.

2.

1.   . .,   . .,   . .   //
:   . . − .:   , 1986. − . 19–29.
2.   . .,   . .   . − .:
,   . - , 1983. – 216 .
3.   . .,   . .
-                                //   . – 1982. − 5. −
. 52–56.