

621.396; 621.3.092

1, . . . 2, . . . 1, . . . 1, . . . 1

1  
2

,

,

“ - ”

,

:

,

,

( ) [1, 2]. [3].

,

( ) [1, 2]. [4].

,

[5],

( ).

,

( ) [6] ( [7].

,

(

).

,

( ),

( ),

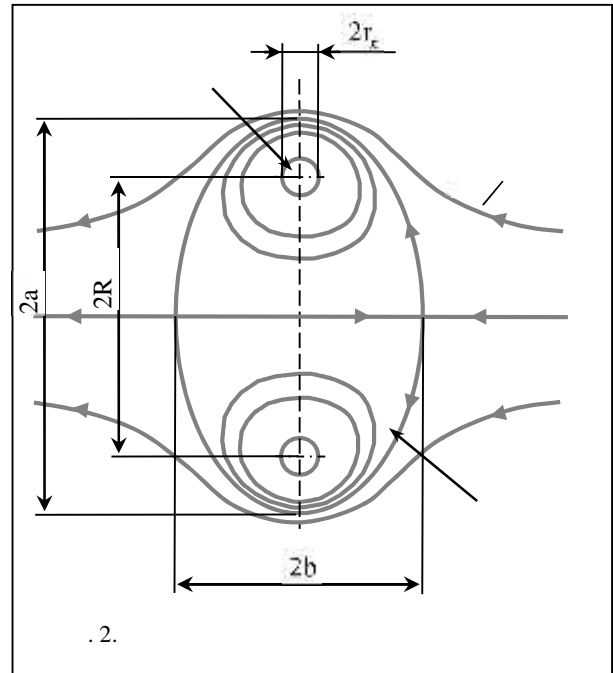
( ).

( )

( . 2) [10]:

r ,

[4, 8].



R , a b -

[9, 10].

[9-11]

[12],

[13].

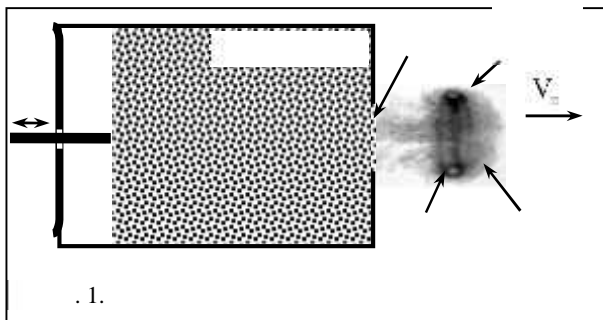
[10],

[14]

[15].

[16].

( ) ( . 1).



V

$\tau$

$\tau$

V

[10, 17].

100

[10].

1

100

( . 1)

( )

[10].

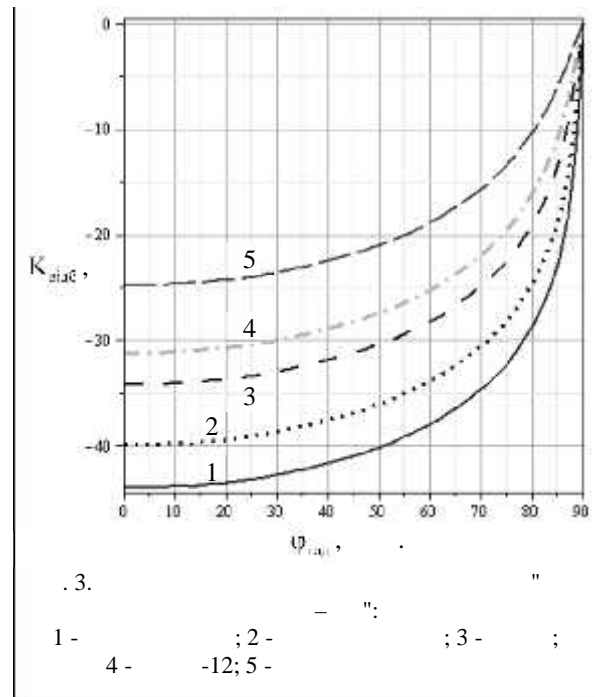
[10, 11].

T

[18 – 20].

1

	, °		/ 3 ,	° ,
	0	1,00058	1,29	---
	20	1,00074	1,20	---
	0	1,00027	0,09	-253
	0	1,00099	1,98	-78
	0	1,0021	6,53	-64
-12	0	1,0036	5,39	-28
	110	1,013	0,80	100
	119	1,014	5,80	119



T

3

K

$\varphi$  [1]

( , , , ) .

" - " 1.

[21],

[22].

3 1. 1 4 5 3

100

( 13 19 )

( 13 19 )

18. /  
 19. , 1976. -1008 .

( / ... ) : , 1996.  
 -312 .

1. / 20. /  
 ... , 1972. -463 . ... , 1971. - 368 .

2. / 21. /  
 ... / ... / ...

" " , 1998. - 828 . 2007. -312 .

3. ( , 1991. - 510 . 22. / ... , 1979. -  
 ) - : , 1989. - 354 . / 46 c.

4. /  
 ... , 1985. - 197 .

5. / 1.09.2013  
 ... , 1985. - 197 .

6. /  
 ... , 2002. - 687 .

7. / ... , 1974. - 308 .

8. /  
 ... ;  
 , 2012.

- 128 .

9. //  
 ... , 1970. - .15-21.

10. / ... -  
 : - , 2007. - 151 .

11. " "  
 - //  
 . - 2000. - . 37. - .46-52

12. Li Jianbing Study on the scattering characteristics of  
 stable-stage wake vortices [ ] / Jianbing  
 Li, Xuesong Wang, Tao Wang, Zhongxun Liu. -  
 : <http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=5438504&url=http%3A%2F%2Fieeexplore.iee.org%2Fiel5%2F5434418%2F5438351%2F05438504.pdf%3Farnumber%3D5438504>

13. /  
 ... // , 1971. - 4. - .21-29

14. Vortex Ring Generator [ ] /  
 George Lucey and Louis Jasper. - :  
<http://schizoponia.com/archives/traumaArchive/Infrasound/VortexRingGenerator.pdf>

15. / ... ,  
 ... // ... - 2008. - .78. -  
 .5. - .38-46

16. / ... //  
 ... - 2006. - .43. - .100-105.

17. /  
 ... , 2008.  
 - 172 .

---

. . . . . , . . . . . , . . . . . , . . . . . , . . . . .  
“ — ”  
:  
:

**ARTIFICIAL TROPOSPHERE IRREGULARITIES FOR ESTABLISHMENT OF RADIO CHANNELS  
WITH IMPROVED CHARACTERISTICS**

V.D. Karlov, A.V. Kryzhnyi, V.L. Misailov, V.V. Sidorov, E.O. Ryabokon

*Natural troposphere irregularities are physical grounds for operation of numerous radio engineering systems of various purposes. Introduction of artificial irregularities into the troposphere will allow to improve the characteristics of natural transhorizon radio channels and create the supplementary ones. The possibility of vortex rings application as the bearer of extraneous matter is discussed. It is offered to use as extraneous matter the materials, which have maximum contrast to air at radio frequency rate and are at vaporizing state in normal conditions. Computations of value of reflectivity coefficient from the border are performed, dry air is the extraneous matter for different gasses. It is shown, that artificial troposphere irregularities, filled with freon or propionethyl ether, at the big interval of radio waves incidence angles will have much bigger reflectivity coefficient than natural irregularities of troposphere humidity.*

**Keywords:** *artificial troposphere irregularities, radio channel, vortex ring.*