

The goal of this work is to estimate the effect of the dielectric properties, shape, and geometric dimensions of inserts in a rectangular window of a waveguide meter thick-walled diaphragm on the reflection and transmission coefficients. The estimation of the effects of the geometric dimensions, forms and dielectric properties of the material for partial filling the measuring waveguide cell on its resonance properties has been simulated on the computer. The method of partial domains has been chosen as an apparatus for modeling. The form of the sample of partial dielectric filling for meters with a rectangular window of an insert was demonstrated to affect the frequency characteristics of the measuring cell. Dielectric samples in the form of a parallelepiped may increase the sensitivity of primary microwave frequency converters in comparison with cylindrical samples. A limiting cross-section area for materials under consideration may not exceed  $7 \text{ mm}^2$ .

3].

[1].

[2,

[1, 2].

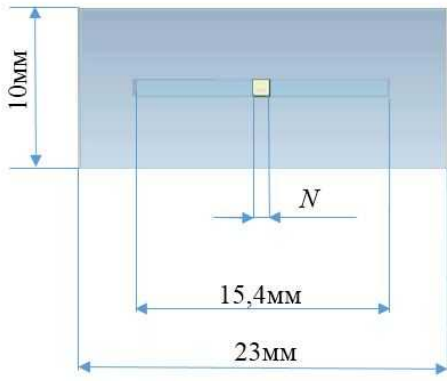
[3, 4].

. 1.

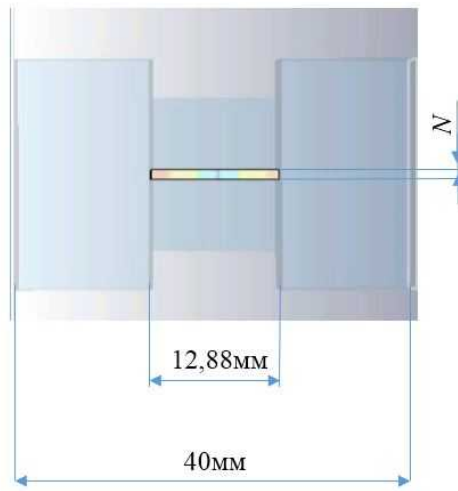
23×10×40  
23×10×12,88

N

N



$N -$



. 1

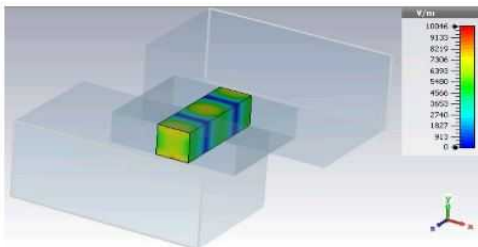
N

0,25 4 .

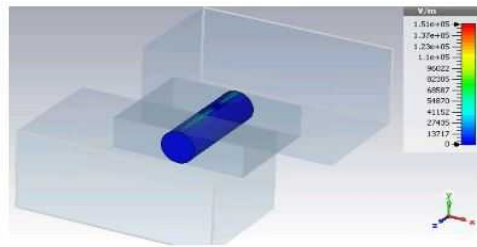
0,25 4 .

. 2  
 $E_{11}$

=10.



a)



б)

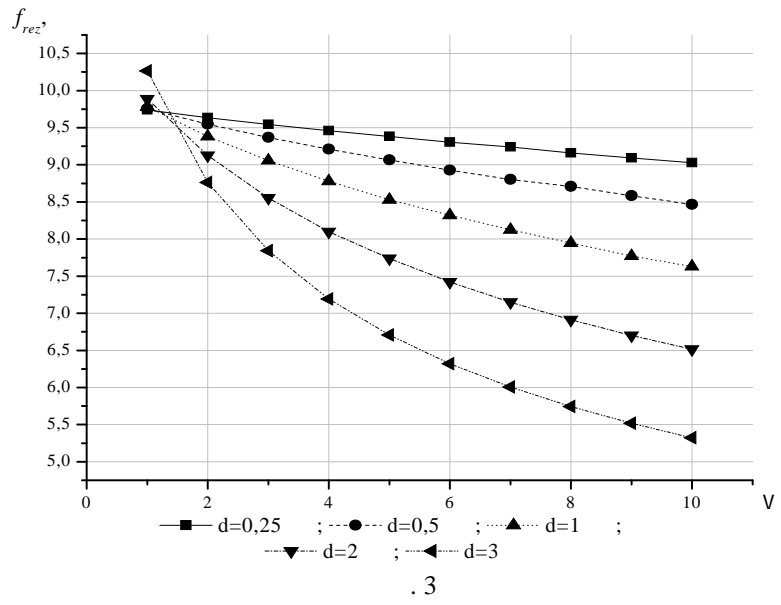
. 2

. 3.

$f_{rez}()$

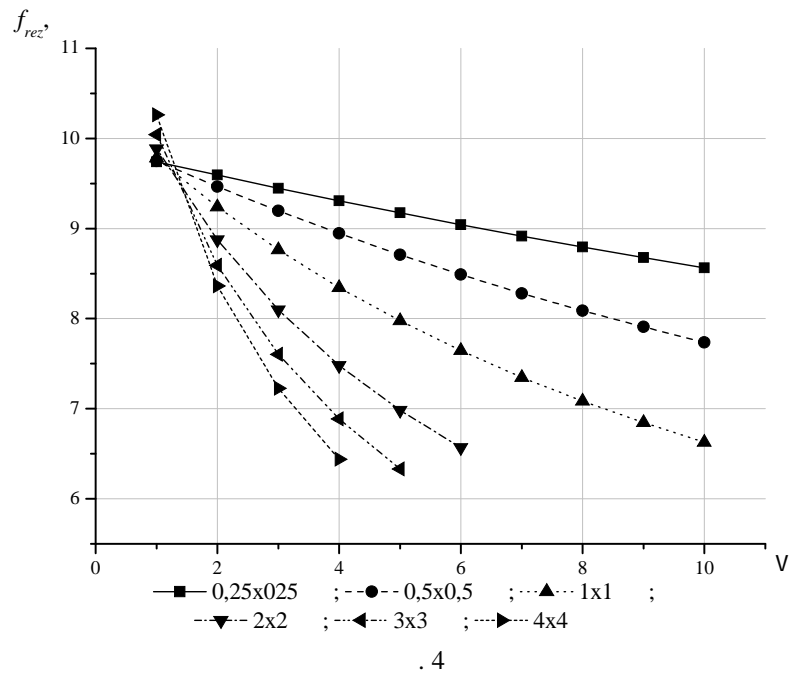
( 8

12,5 )



. 3

. 4



. 4

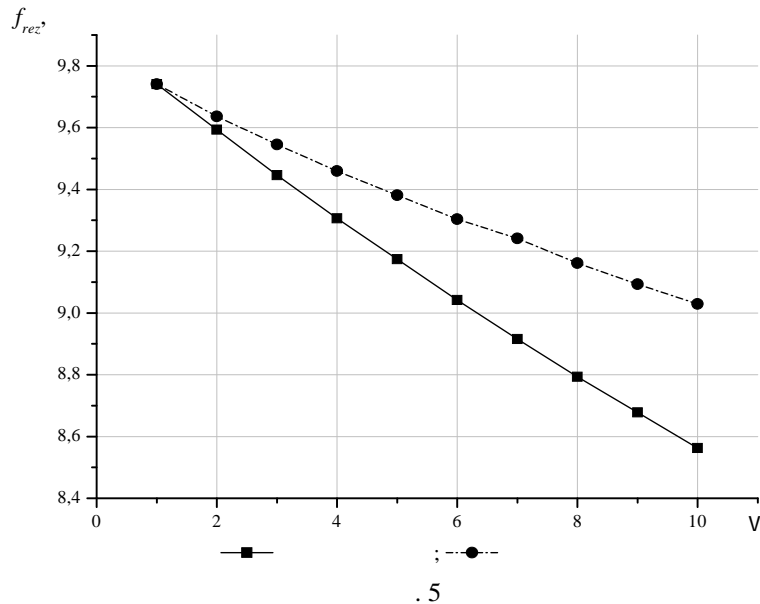
d=2 d=3 >6

. 5

$f_{rez}$

(1)  $f_{rez}(V)$  vs  $V$  graph showing two data series. The y-axis is labeled  $f_{rez}$  and ranges from 8.4 to 9.8. The x-axis is labeled  $V$  and ranges from 0 to 10. The legend indicates two series: a solid line with square markers and a dashed line with circle markers. The data points are approximately as follows:

V	$f_{rez}$ (Series 1: Squares)	$f_{rez}$ (Series 2: Circles)
1	9.75	9.75
2	9.60	9.65
3	9.45	9.55
4	9.30	9.45
5	9.18	9.38
6	9.05	9.30
7	8.92	9.25
8	8.80	9.18
9	8.68	9.10
10	8.55	9.05



7<sup>2</sup> (0.3, 0.4).

1. Evanescent-mode bandpass filters based on ridged waveguide sections and inductive strips / A. Kirilenko, L. Rud, V. Tkachenko, D. Kulik // IEEE MTT-S, Microwave Symposium Digest. – 2001. – V. 2. – P. 1317 – 1320.
2. Craven G. F. Waveguide band-pass filters using vanescent modes / G. F. Craven // Electron. Lett. – 1966. – Vol. 2, No 7. – P. 251 – 252.
3. . . . . . 2. / . . . . . , 1986. – 216 .
4. . . . . . : [ . . . . . ] / . . . . . , . . . . . , . . . . . , 2009. – 469 .

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21.06.2016