

004.942

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## ON THE GEOMETRY OF THE OBJECT SEARCH AREA BASED ON RADAR MEASUREMENTS

*In the paper we examine the approaches to constructing the search area for an evacuated object using radar aids that allow you to determine the range and bearing of the desired object to the location of which the search forces need to move. A combined application of the results of determining the range and direction finding for constructing of the search area is proposed. The dependence of the square of the object search area on the error of range determination and the width of the bearing sector, as well as on the object range, is analyzed.*

*Keywords: object searching; radar measurements; error of range determination; bearing sector; square of search area.*

( )

[1-6].

( )

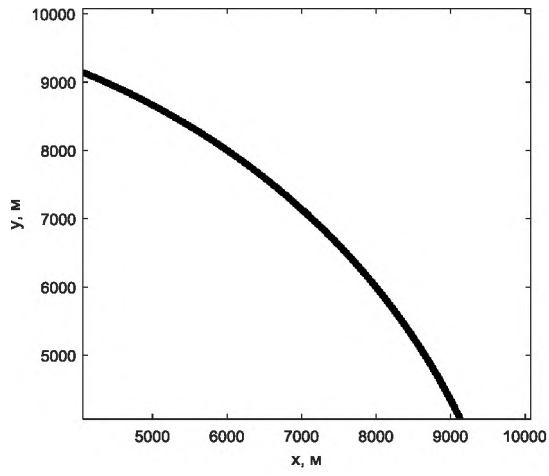
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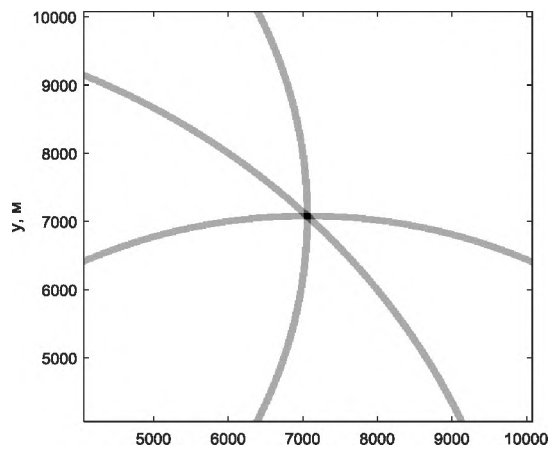
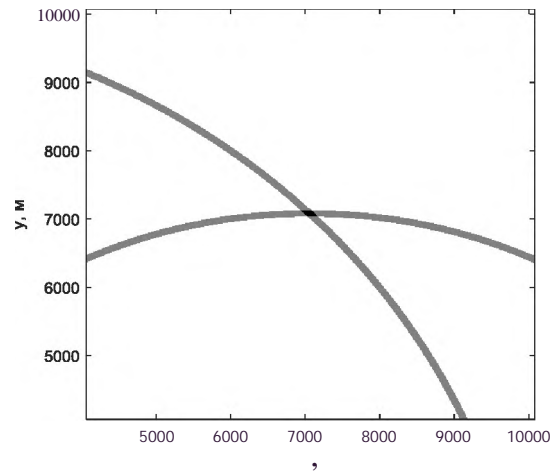
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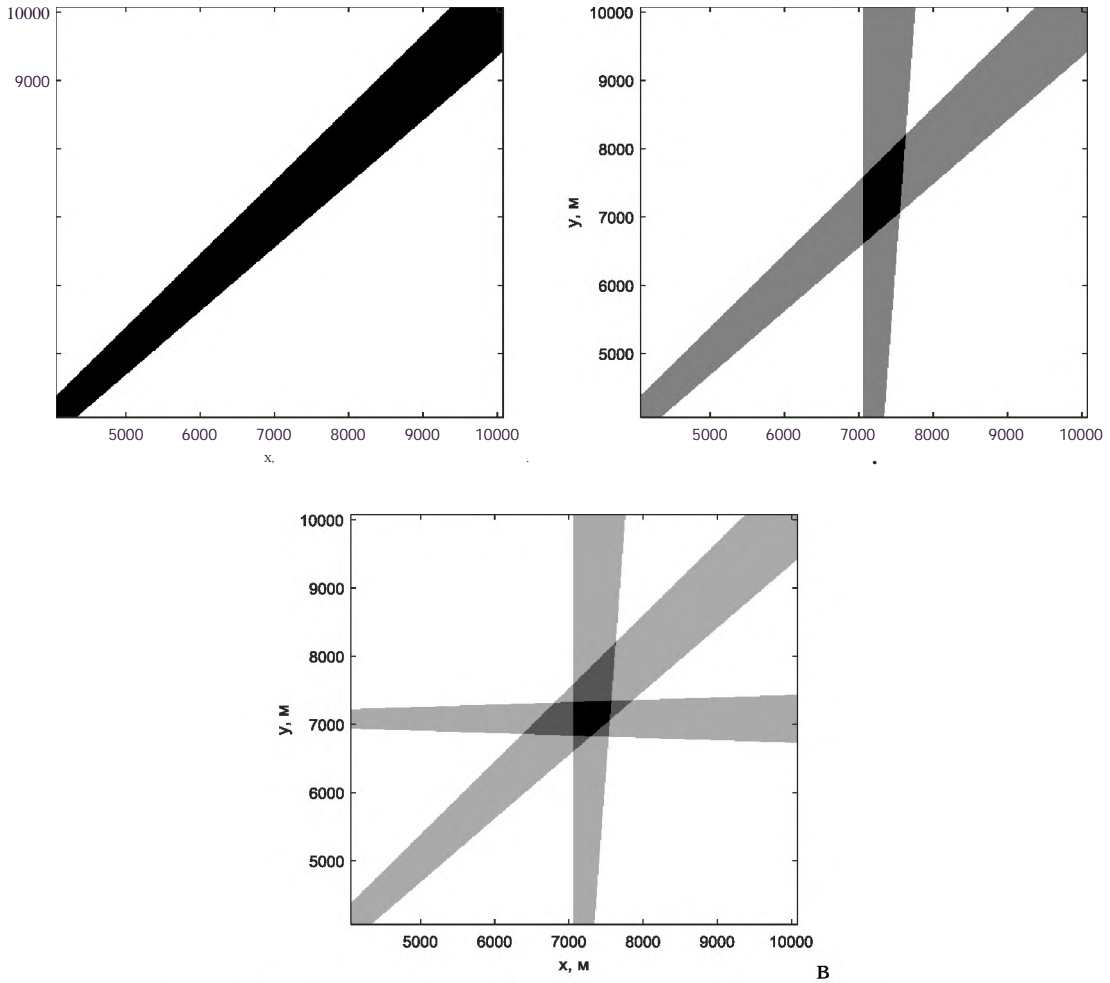
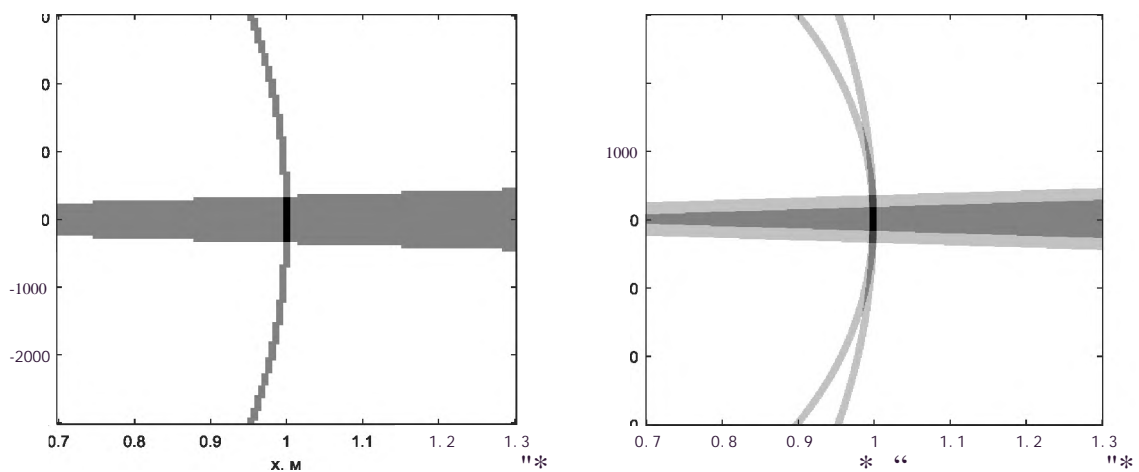


Рисунок 2 – Примеры областей описки, полученных при пеленгации:



3 -

( ). ( )  
 ,  $S$  ,  
 :  
 $= 1/S$ . (1)  
 $S$  ,

( 3 ), :  
 $S = Ar - 2r \cdot tg \{—\}$ , (2)  
 $Ar -$  (  $Ar -$  3,  
 ), -  
 ,  $r -$   
 1  $Ar$  ,  
 $r$   
 (2).

1 -

	$S, ^2$
$Ar = 4, \alpha = 5^\circ$	
2000	698,58
5000	1 746,44
10000	3 492,88
20000	6 985,75
30000	10 478,63
$Ar = 4, \alpha = 2^\circ$	
2000	279,28
5000	698,20
10000	1 396,41
20000	2 792,81
30000	4 189,22
$Ar = 10, \alpha = 2^\circ$	
2000	698,20
5000	1 745,51
10000	3 491,01
20000	6 982,03
30000	10 473,04

$$S = 100^{*2}$$

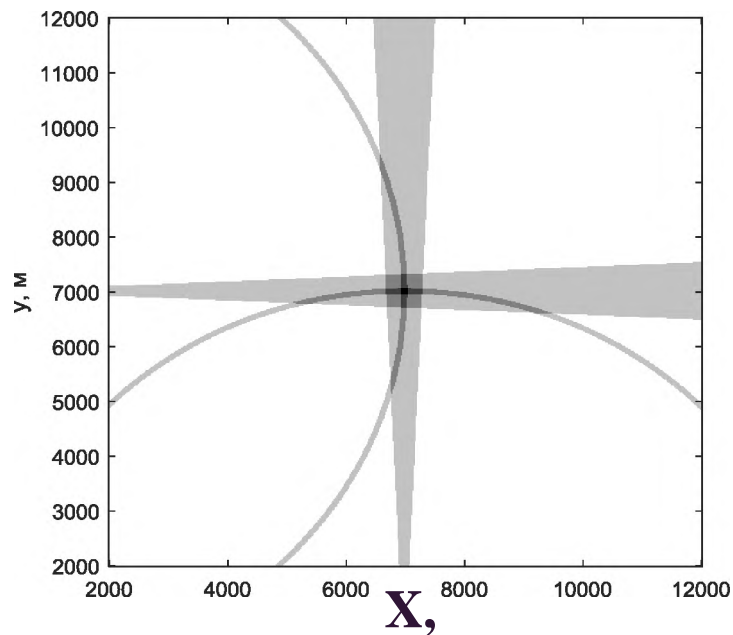
,  
 ,  
 $S^*$  ,  
 $Ar$   
 $r^*$  :

$$r^* = \sqrt{2Ar \cdot \tan(a)}, \tag{3}$$

$$Ar = 4, a = 5^\circ, S = 100^2$$

286,3

$$Ar = 100, a = 5^\circ$$



4 -

$$Ar = 4, a = 5^\circ, S = 15,3^2$$

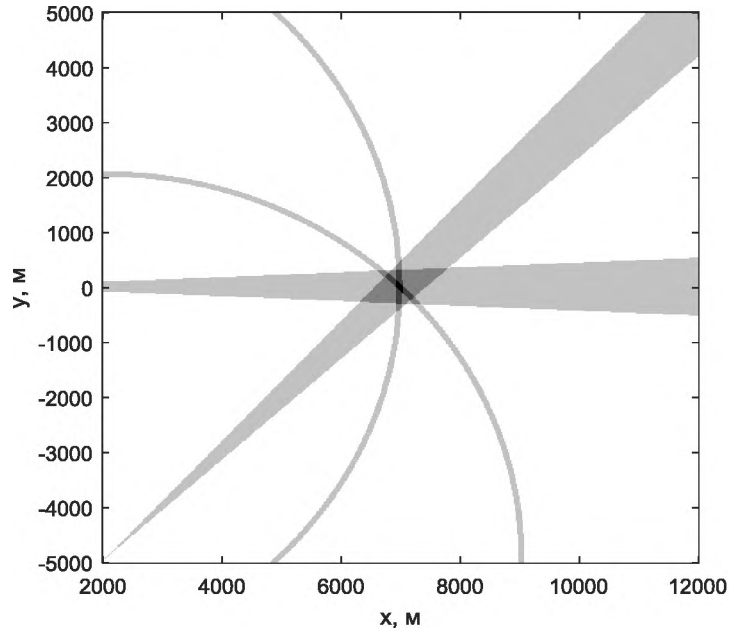
( , , 4).

( , ),

$$= 45^\circ ( 5).$$

$$= 4, a = 5^\circ, S$$

2



5 -

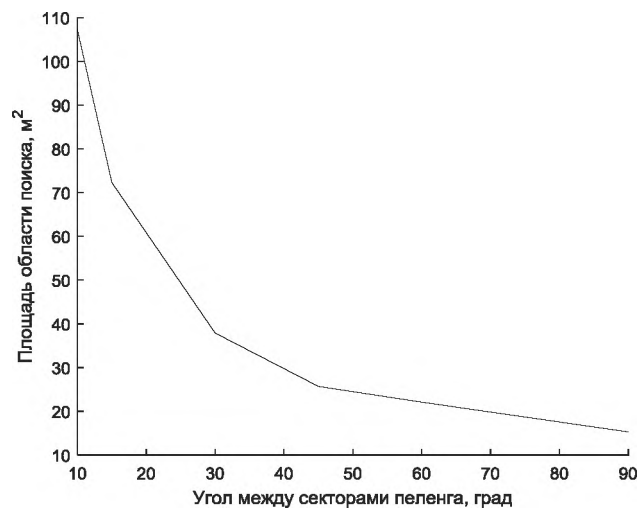
( = 45°)

2 -

( = 4 , = 5°)

	$S, \text{ m}^2$
10	107,2
15	72,3
30	37,9
45	25,7
60	22,1
90	15,3

6 -



6 -

S

2, 6, ,  
 $= 90^\circ$  ,  $= 30^\circ$

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