

633

© 2010 . . . , . . . , . . . \*

\* . . . , . . . , . . .

[1]

n(T)  
He-Ne

(λ = 633 ),

= 300 , dn/dT [2],

n(T) n(T).

= 170 - 670

n(T)

[3, 4].

[3]

= 300 - 900 300 - 1500

n(T)

633

= 300 - 700 .  
n(T)

nh,

cos(2nkh)

( k = 2π/λ, h

: Δ(nh) = λ/2.

dn/dT

(

).

He-Ne

-118-3 (

“ ”, . . . ),

4 4 [5].  
2

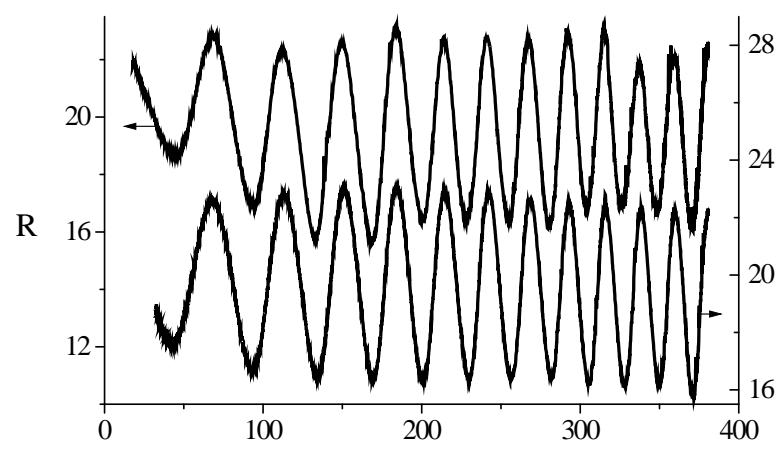
h = 0.31-0.36 .

-1201.

633 )

( 0.3  
( - ),

20 - 400 ( . 1). R(T) 12 -



. 1. ) ( ) ( ) 366 . 633 .

$$n(T) = [0.5\lambda N(T) + n(T_1)h(T_1)]/h(T) \quad (1)$$

$n(T_1) \quad h(T_1) -$   
 $; N(T) -$   
 $(N = 0, 1,$   
 $; N = 0, 0.5, 1, 1.5 \dots,$   
 $N = 0.$

2, 3..., [3],

$$n(T_1) = n(20) + \frac{dn/dT}{n(T_1)} (T_1 - 20) \quad (1)$$

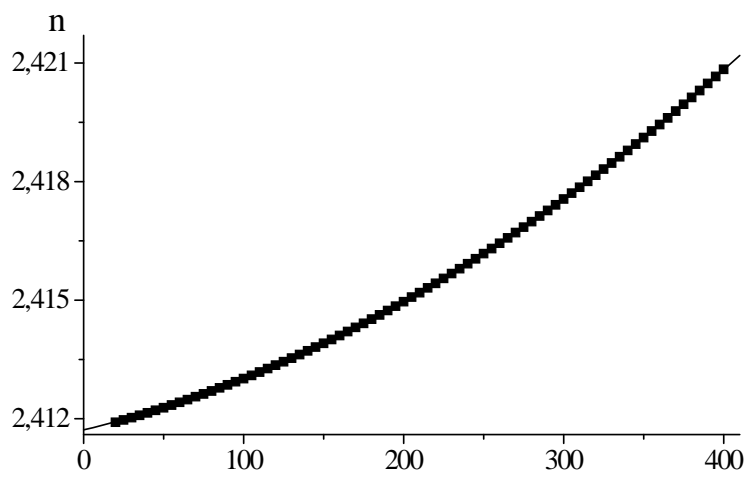
$(dn/dT) \cdot (T_1 - 20) / n(T_1) \quad (1).$   
 $633 \quad (1), \quad [6]. \quad n = 2.412 [3].$

$n(T), \quad [7], \quad dn/dT \quad . 2, \quad 3\%.$   
 $n(T), \quad ( . 2) \quad dn/dT$   
 $n(T)$

SiO<sub>2</sub>, -8, n(T) : Si, GaAs, InP, LiNbO<sub>3</sub>, CaF<sub>2</sub>,

( )

( )



. 2.

633

( )

dn/dT ( ) = 20

( )

[8].

( )

1)  $\rho \approx 3.5 \cdot 10^{18} - 10^{19} \text{ cm}^{-3}$  ( )

2)  $\tau \approx h^2 / 2\pi\kappa$  ( )

3)  $\kappa = \lambda / c\rho$  ( )

$(\kappa \approx 10^{-2} / \text{cm}^2)$   $\rho \approx 0.3$   $\tau \approx 10^{-10}$   $n(T)$

1. ... 2001. . 131-180.
2. Tropf W.J., Thomas M.F., Harris T.J., Properties of Crystals and Glasses / Handbook of Optics, Vol. II. New York: McGraw-Hill, 1995. P. 33.
3. Zaitsev A.M. Optical properties of diamond: a data handbook. – Berlin, Heidelberg: Springer, 2001, p. 6.
4. Ruf T., Cardona M., Pickles C.S.J., Sussmann R. Temperature dependence of the refractive index of diamond up to 925 K // Phys. Rev. B. 2000, v. 62, No. 24, p. 16578 - 16581.
5. // . 2010, 1, . 159 - 164.
6. // , 1965, . 228.
7. Tropf W.J., Harris T.J., Thomas M.E. / Electro-optics Handbook, Waynant R.W. and Ediger M.N. (Eds.). N.Y.: McGraw-Hill, 2000, Ch.11.
8. // . XVIII . C . “ . 2008, . 577 - 584.