

Archive of SID

Nd:YAG

(25',14" N 60',30" E

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Beer-Lambert-Bouguer

Nd:YAG

Beer

$\epsilon_0(m^{-1})$

()

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(Morel 1988)

(Mobley et al.

.1993)

Beer-Lambert-

Nd:YAG

: Beer

Bouguer

$$I_1 = I_0 e^{-\epsilon_0 z_1} \quad ()$$

ϵ_0

k_0

$\epsilon_0(\lambda)$

σ_0

$$\epsilon_0 = k_0 + \sigma_0 \quad ()$$

(Kirk, 1994)

(Gallegos 1994)

l

$l \text{ m}^{-1}$

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(450-550)

a

0.0168- m^{-1}

(0.0045- m^{-1}

(0.0648)

[Knauss ,286]

0.0019)

(KSS Lidar Data-Jan 2002)

-
- 1- Attenuation
 - 2- Absorption
 - 3- Scattering -

$$\ln \frac{I_r}{LI_0} = -2\varepsilon_0 z_1 \quad (1)$$

Nd:YAG

$| m^{-1} |$

:

$$\varepsilon_0 = \ln \left(\frac{I_r}{LI_0} \right)^{-1/2z_1} \quad (2)$$

$$\alpha = \arcsin \left(\frac{I_0}{I_1} \right) \quad (3)$$

$(z_1 = z_2)$

$(r = \beta)$

$$(I_0) \quad (4)$$

$$\frac{\sin \alpha}{\sin r} = \frac{n_r}{n_i} \quad (5)$$

(I_r)

:

$$\cos r = \frac{z_{water}}{z_1} \quad (6)$$

$$(L) \quad (7)$$

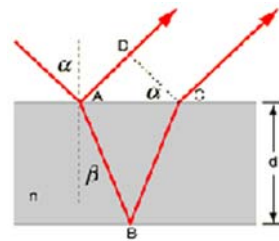
Excel

Beer

%

%

Nd:YAG



$(25', 14'' N \quad 60', 30'' E)$

$$I_r = LI_1 \exp(-\varepsilon_0 z_2) \quad (8)$$

$$(I_1)$$

$$z_2 = OB = z_1$$

1- Coating.

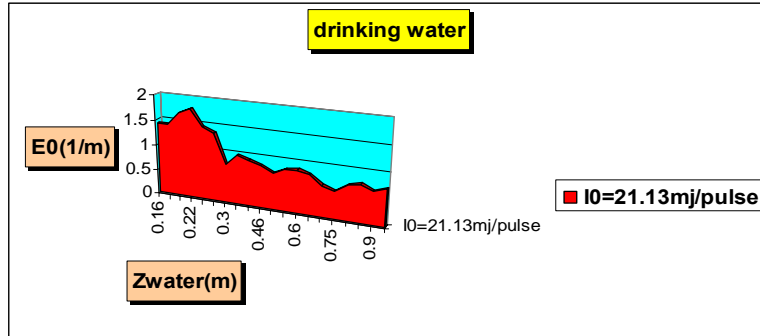


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$\epsilon_0(m^{-1})$

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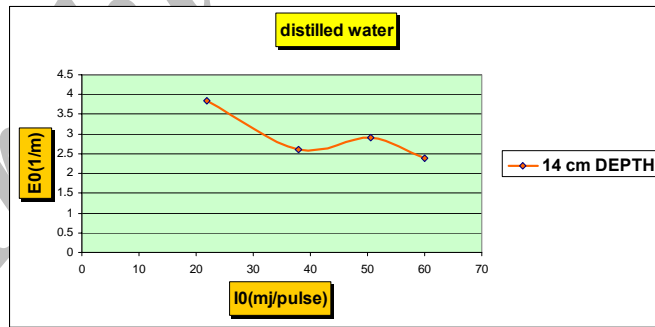
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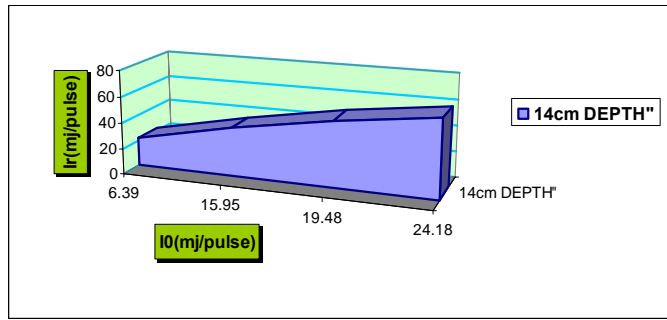
95cm

/

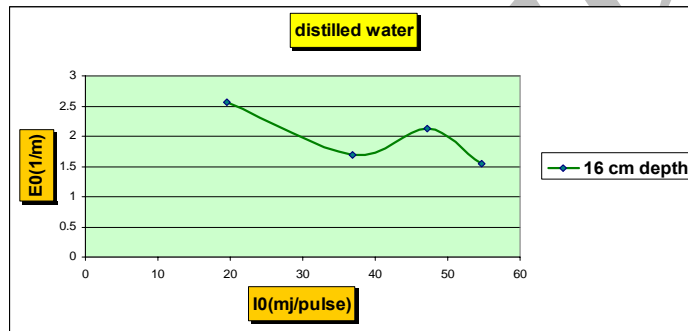
$\epsilon_0(m^{-1})$



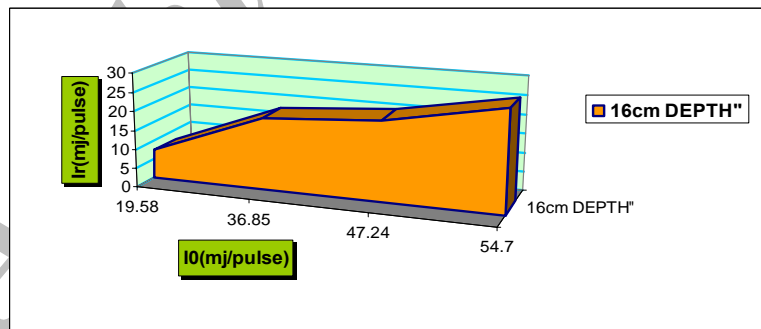
(cm)



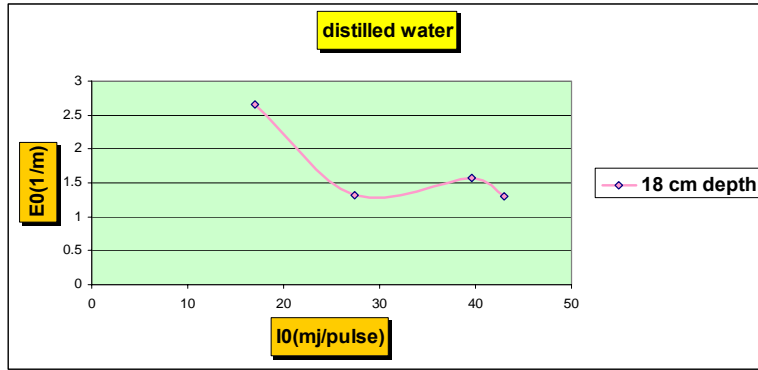
(cm)



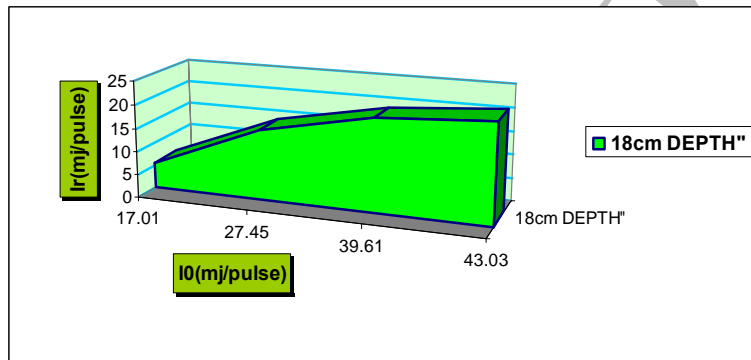
(cm)



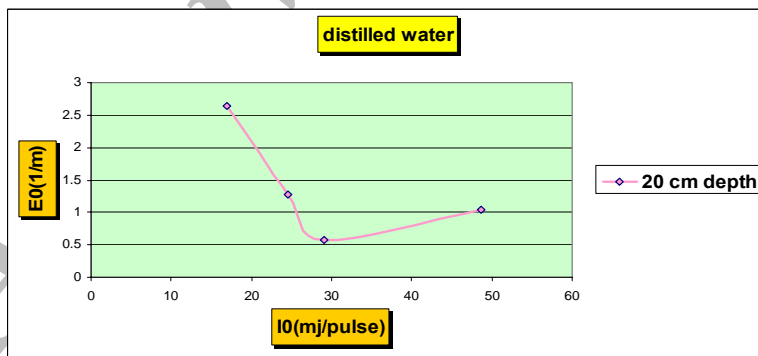
(cm)



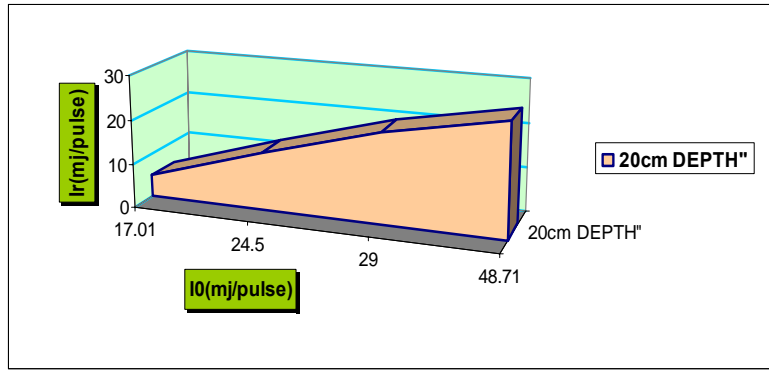
(cm)



(cm)

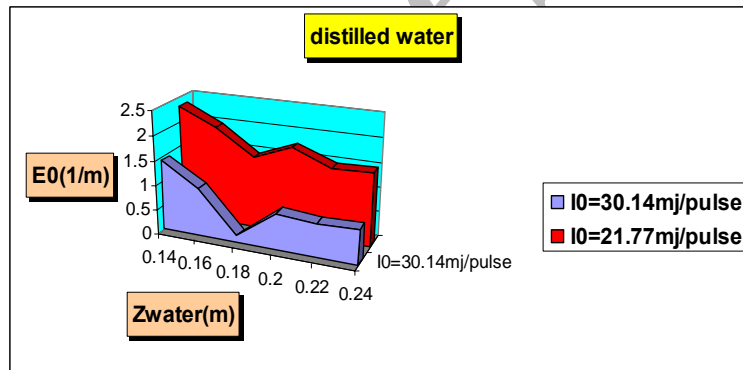


(cm)



(cm)

$\varepsilon_0(m^{-1})$ ()



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(CTD)

$$S = \frac{I}{p \cdot t}$$

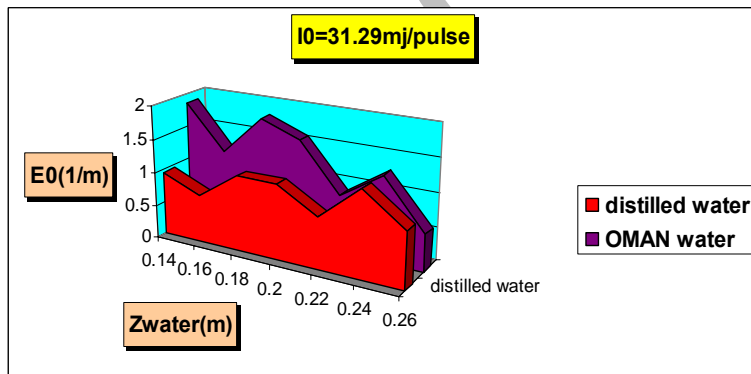
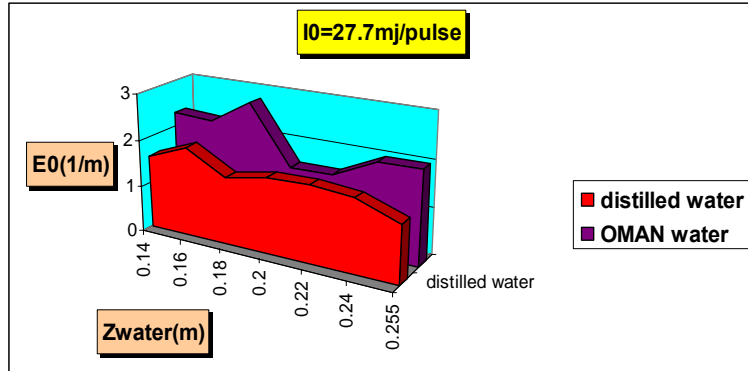
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$\varepsilon_0(m^{-1})$

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() (/ mj/pulse)

() (/ mj/pulse)



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Beer

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$\epsilon_0(m^{-1})$ () () () ()



$\varepsilon_0(m^{-1})$

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$\varepsilon_0(m^{-1})$

Laser

Line Scanning (LLS)

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