

Fresnel integral, Eq. (2.40) p. 28

Abramowitz & Stegun pp 300-302

$$ff(z) := \frac{1 + .926 \cdot z}{2 + 1.792 \cdot z + 3.104 \cdot z^2}$$

$$gf(z) := \frac{1}{2 + 4.142 \cdot z + 3.492 \cdot z^2 + 6.670 \cdot z^3}$$

$$Cfp(z) := \frac{1}{2} + ff(|z|) \cdot \sin\left(\frac{\pi}{2} \cdot z^2\right) - gf(|z|) \cdot \cos\left(\frac{\pi}{2} \cdot z^2\right)$$

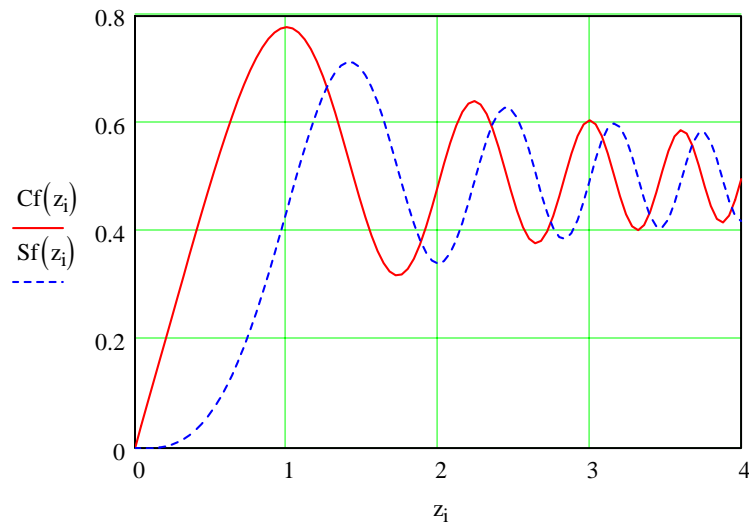
$$Sfp(z) := \frac{1}{2} - ff(|z|) \cdot \cos\left(\frac{\pi}{2} \cdot z^2\right) - gf(|z|) \cdot \sin\left(\frac{\pi}{2} \cdot z^2\right)$$

$$Cf(z) := Cfp(z) \cdot \text{sign}(z) \quad Sf(z) := Sfp(z) \cdot \text{sign}(z)$$

NP := 100

i := 0..NP

$$z_i := \frac{4}{NP} \cdot i$$

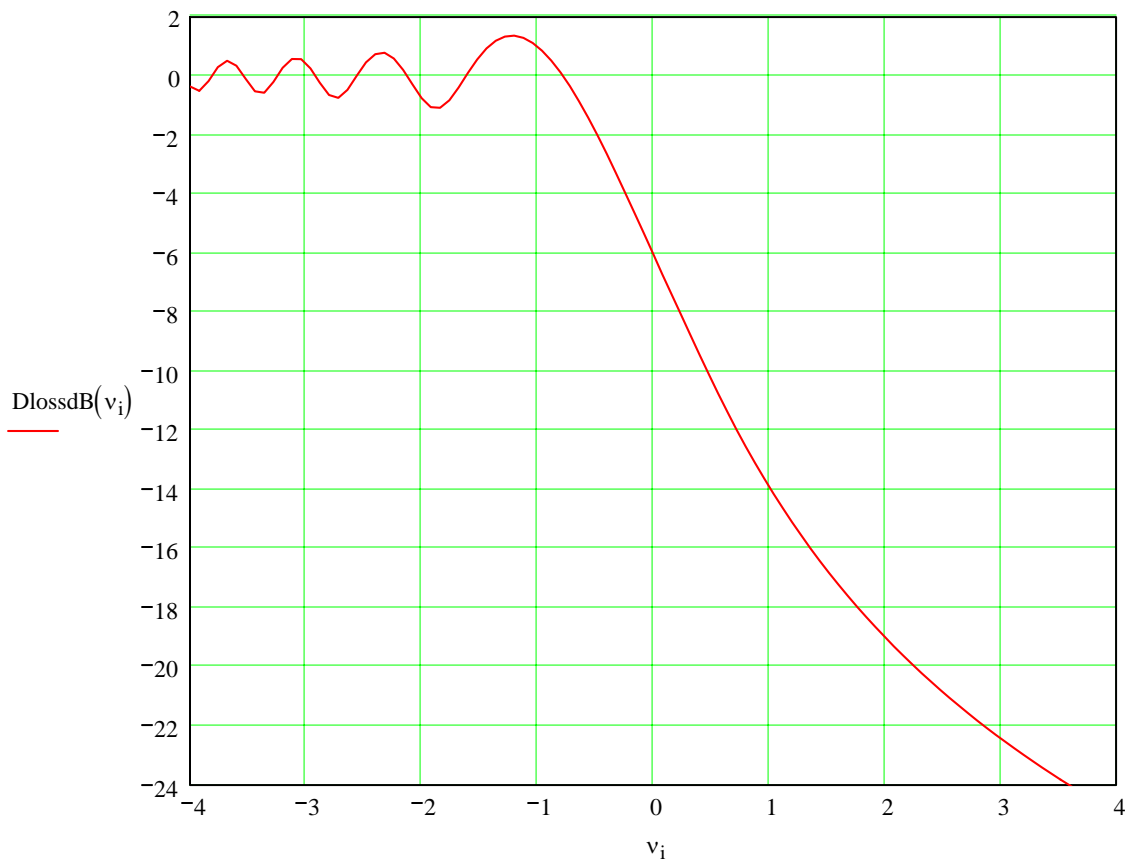


$$D_{\text{lossc}}(v) := \frac{1+j}{2} \cdot \left[-\text{ff}(|v|) \cdot \left(\sin\left(\frac{\pi}{2} \cdot v^2\right) + j \cdot \cos\left(\frac{\pi}{2} \cdot v^2\right) \right) + \text{gf}(|v|) \cdot \left(\cos\left(\frac{\pi}{2} \cdot v^2\right) + j \cdot \sin\left(\frac{\pi}{2} \cdot v^2\right) \right) \right]$$

$$D_{\text{lossc}}(v) := \frac{1+j}{2} \cdot \left[\left(\frac{1}{2} - \text{Cf}(v) \right) - j \cdot \left(\frac{1}{2} - \text{Sf}(v) \right) \right]$$

$$D_{\text{lossdB}}(v) := 20 \cdot \log(|D_{\text{lossc}}(v)|)$$

$$v_i := -4 + \frac{8}{\text{NP}} \cdot i$$

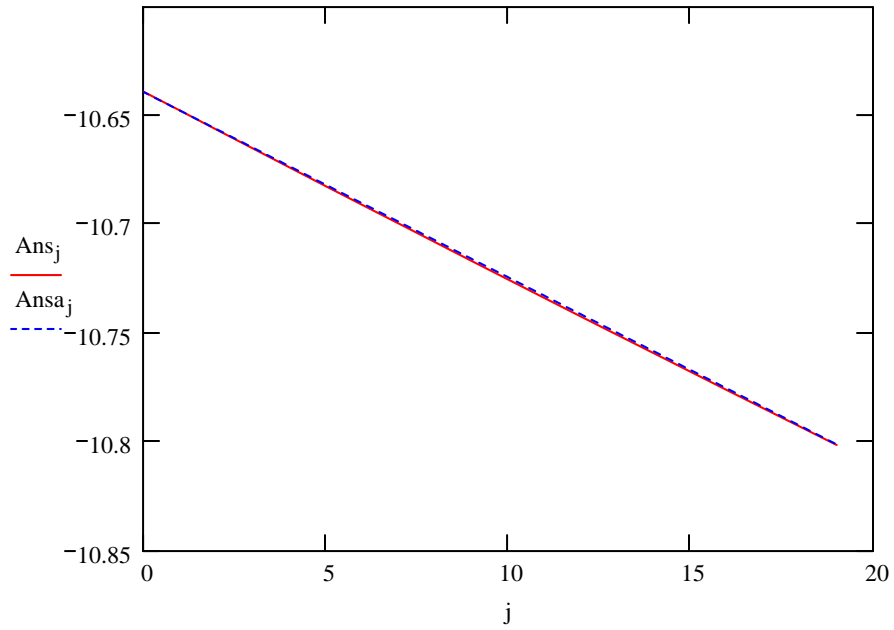


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gnu := (0.547912115)
      (0.549006846)
      (0.550099398)
      (0.551189784)
      (0.552278018)
      (0.553364111)
      (0.554448077)
      (0.555529928)
      (0.556609676)
      (0.557687334)
      (0.558762913)
      (0.559836426)
      (0.560907884)
      (0.5619773)
      (0.563044684)
      (0.564110049)
      (0.565173405)
      (0.566234764)
      (0.567294138)
      (0.568351537)
j := 0..19
Ans_j := DlossdB(gnu_j)

```

$$\text{Ansa}_j := -10.639 - \frac{0.162}{19} \cdot j$$



```

(0.173265024 )
0.173611208
0.173956704
0.174301514
0.174645644
0.174989097
0.175331877
0.175673988
0.176015434
0.17635622
gnu2 := 0.176696348
0.177035822
0.177374647
0.177712826
0.178050363
0.17838726
0.178723523
0.179059155
0.179394158
(0.179728537 )

```

```
Ans2_j := DlossdB(gnu2_j)
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$$\text{Ansa2}_j := -7.501 - \frac{0.055}{19} \cdot j$$

