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Relação entre a Componente de Ruído de Cintilação “ b ” e a Frequência Máxima de Cintilação “ f_{cint} ”

$$10\log\left\{\frac{FkT}{2P_{avs}}\left[1+\frac{fc}{f_m}+\left(\frac{fo}{2f_mQ_L}\right)^2\left(1+\frac{fc}{f_m}\right)\right]\right\}=10\log\left[bf_m^{-1}+\frac{FkT}{P_{avs}}\right]+10\log\left[1+\left(\frac{f_0}{2Q_Lf_m}\right)^2\right]-3dB$$

$$10\log\left\{\frac{FkT}{P_{avs}}\left[1+\frac{fc}{f_m}+\left(\frac{fo}{2f_mQ_L}\right)^2\left(1+\frac{fc}{f_m}\right)\right]\right\}-3dB=10\log\left[bf_m^{-1}+\frac{FkT}{P_{avs}}\right]+10\log\left[1+\left(\frac{f_0}{2Q_Lf_m}\right)^2\right]-3dB$$

$$10\log\left\{\frac{FkT}{P_{avs}}\left[1+\frac{fc}{f_m}+\left(\frac{fo}{2f_mQ_L}\right)^2\left(1+\frac{fc}{f_m}\right)\right]\right\}=10\log\left\{\left[bf_m^{-1}+\frac{FkT}{P_{avs}}\right]\times\left[1+\left(\frac{f_0}{2Q_Lf_m}\right)^2\right]\right\}$$

$$\frac{FkT}{P_{avs}}\left[1+\frac{fc}{f_m}+\left(\frac{fo}{2f_mQ_L}\right)^2\left(1+\frac{fc}{f_m}\right)\right]=\left[bf_m^{-1}+\frac{FkT}{P_{avs}}\right]\times\left[1+\left(\frac{f_0}{2Q_Lf_m}\right)^2\right]$$

$$\frac{FkT}{P_{avs}}+\frac{FkT}{P_{avs}}\frac{fc}{f_m}+\frac{FkT}{P_{avs}}\left(\frac{fo}{2f_mQ_L}\right)^2+\frac{fc}{f_m}\frac{FkT}{P_{avs}}\left(\frac{fo}{2f_mQ_L}\right)^2=\frac{b}{f_m}+\frac{b}{f_m}\left(\frac{f_0}{2Q_Lf_m}\right)^2+\frac{FkT}{P_{avs}}+\frac{FkT}{P_{avs}}\left(\frac{f_0}{2Q_Lf_m}\right)^2$$

$$\frac{fc}{f_m}\left[\frac{FkT}{P_{avs}}+\frac{FkT}{P_{avs}}\left(\frac{fo}{2f_mQ_L}\right)^2\right]=\frac{b}{f_m}\left[1+\left(\frac{f_0}{2Q_Lf_m}\right)^2\right]$$

$$fc\frac{FkT}{P_{avs}}\left[1+\left(\frac{fo}{2f_mQ_L}\right)^2\right]=b\left[1+\left(\frac{f_0}{2Q_Lf_m}\right)^2\right]$$

$$b=fc\frac{FkT}{P_{avs}}$$

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Apêndice B

Sobreposição dos Valores Simulados com os Valores Medidos do Ruído de Fase

9.1.

$f_{cint} = 1$ kHz

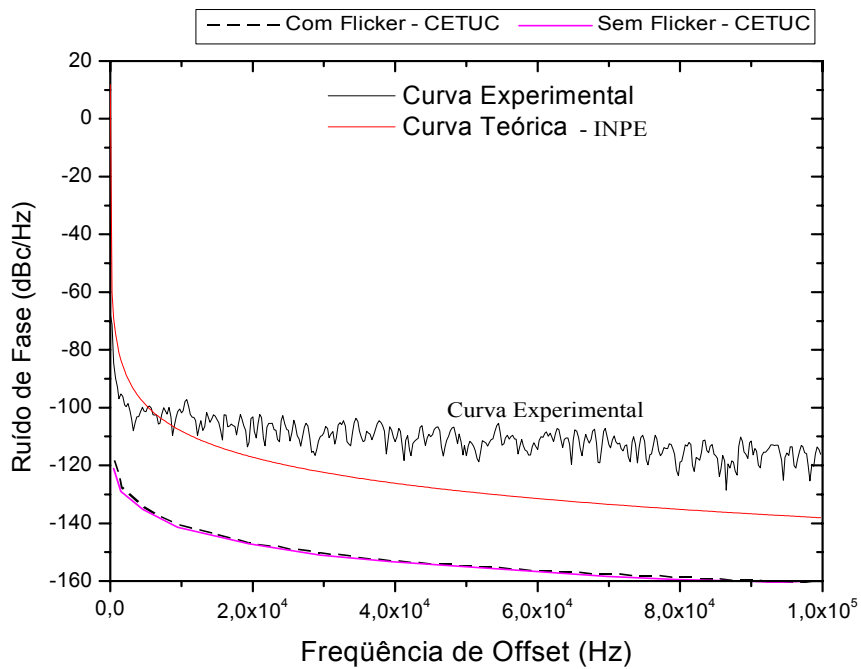


Figura 9.1. Sobreposição utilizando $f_{cint} = 1$ kHz.

9.2. F_{cint} = 10 kHz

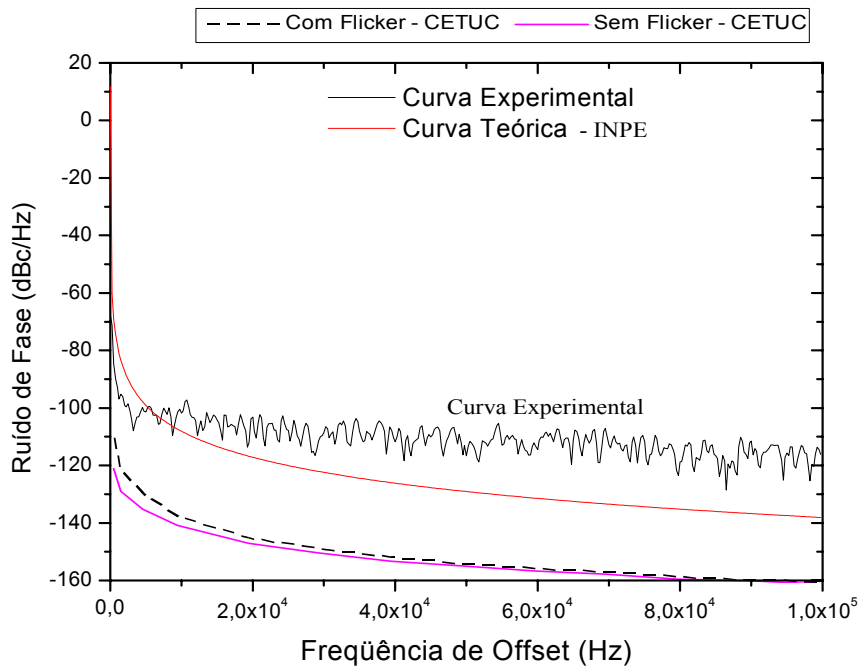


Figura 9.2. Sobreposição utilizando $f_{cint} = 10$ kHz.

9.3. F_{cint} = 100 kHz

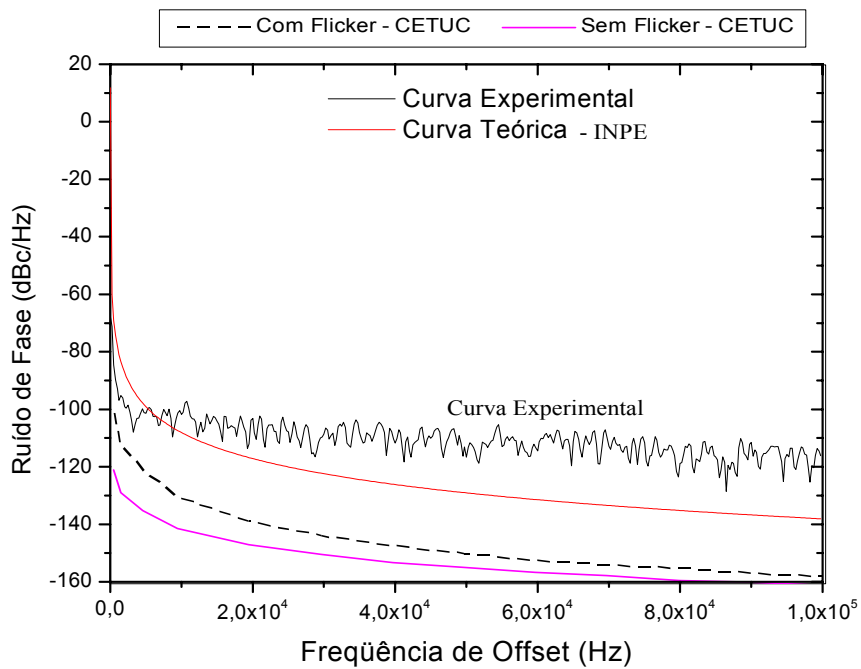


Figura 9.3. Sobreposição utilizando $f_{cint} = 100$ kHz.

9.4. F_{cint} = 500 kHz

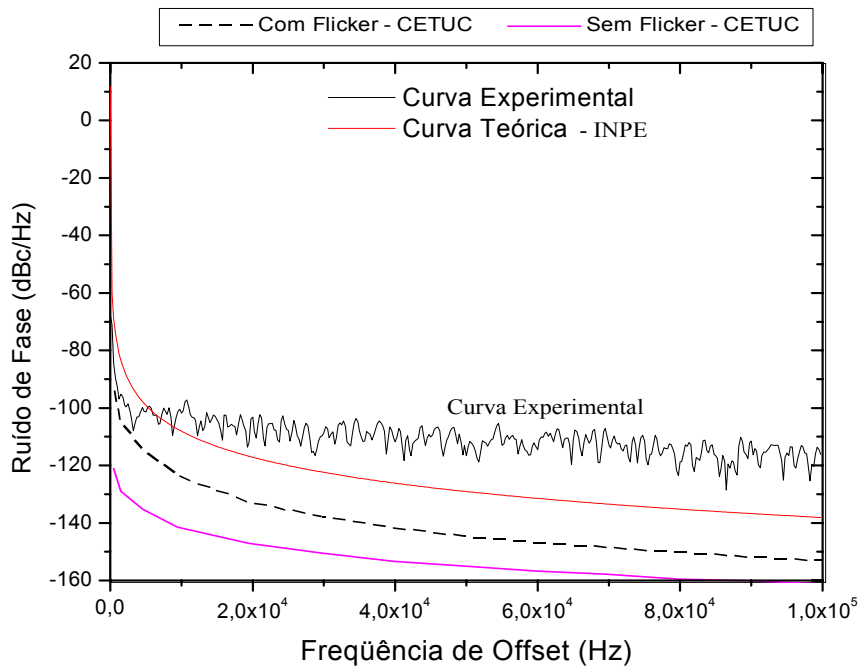


Figura 9.4. Sobreposição utilizando $f_{cint} = 500$ kHz.

9.5. F_{cint} = 1 MHz

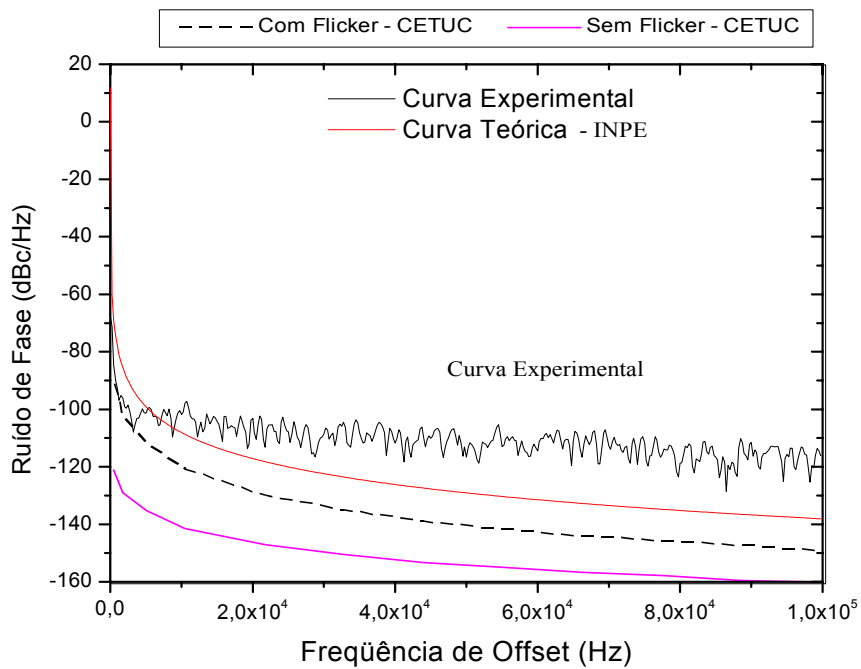


Figura 9.5. Sobreposição utilizando $f_{cint} = 1$ MHz.

9.6.

F_{cint} = 10 MHz

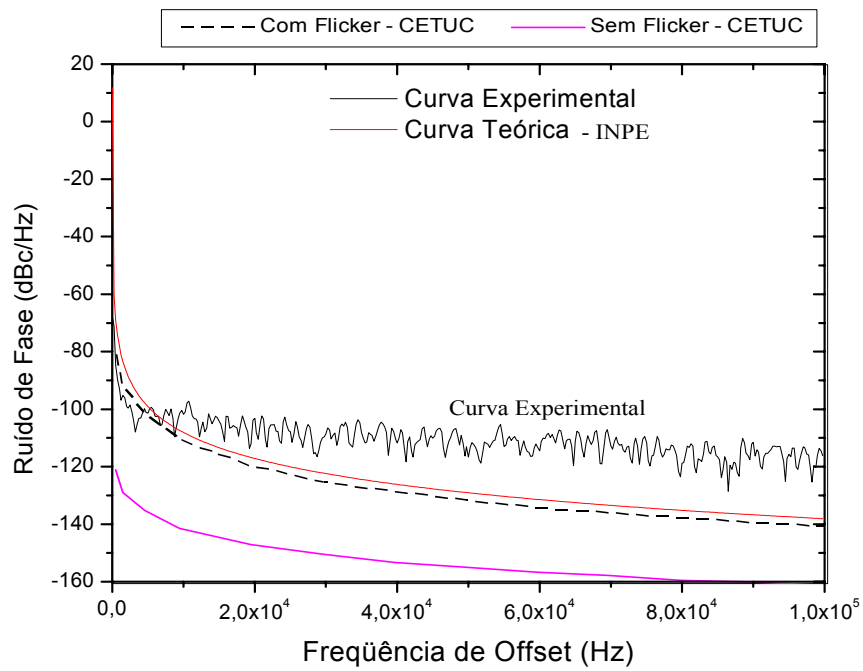


Figura 9.6. Sobreposição utilizando $f_{cint} = 10$ MHz.