Status

- 令 $P\left(\omega^{*}\right)=u=\dfrac{f/m}{\sqrt{4\gamma^{2}\left(\omega^{*2}+\gamma^{2}\right)}}$

$$f/m=P\left(\omega^{*}\right)\sqrt{4\gamma^{2}\left(\omega^{*2}+\gamma^{2}\right)}$$

$$f=P\left(\omega^{*}\right)\sqrt{4\gamma^{2}\left(\omega^{*2}+\gamma^{2}\right)}\cdot m$$

$$=P\left(\omega^{*}\right)\sqrt{4\gamma^{2}\left(\omega^{*2}+\gamma^{2}\right)}\cdot\frac{1}{\omega^{*2}}$$

$$m=\frac{k}{\omega^{2}}\Rightarrow m\propto\frac{1}{\omega^{2}}$$

$$u_i(\omega) = \frac{\dfrac{\sum_j f_j}{m_i}}{\sqrt{4\gamma_i^2\left(\omega^{*2}_i + \gamma_i^2\right)}} = \frac{\sum_j P\left(\omega^*_j\right)\sqrt{4\gamma_j^2\left(\omega^{*2}_j + \gamma_j^2\right)} \cdot \dfrac{1}{\omega^{*2}_j} \cdot \omega^{*2}_i}{\sqrt{4\gamma_i^2\left(\omega^{*2}_i + \gamma_i^2\right)}}$$

$$= \sum_j P\left(\omega^*_j\right) \cdot \frac{\sqrt{4\gamma_j^2\left(\omega^{*2}_j + \gamma_j^2\right)}}{\sqrt{4\gamma_i^2\left(\omega^{*2}_i + \gamma_i^2\right)}} \cdot \frac{\omega^{*2}_i}{\omega^{*2}_j}$$

$$\text{Edit1: } \frac{\sum_j P\left(\omega^*{}_j\right) \cdot \frac{\sqrt{4\gamma_j^2\left(\omega^*{}_j^2 + \gamma_j^2\right)}}{\sqrt{4\gamma_i^2\left(\omega^*{}_i^2 + \gamma_i^2\right)}} \cdot \frac{\omega^*{}_i^2}{\omega^*{}_j^2}}{\frac{\sqrt{4\gamma_j^2\left(\omega^*{}_j^2 + \gamma_j^2\right)}}{\sqrt{4\gamma_i^2\left(\omega^*{}_i^2 + \gamma_i^2\right)}} \cdot \frac{\omega^*{}_i^2}{\omega^*{}_j^2}} = \frac{\sum_j P\left(\omega^*{}_j\right) \cdot \sqrt{4\gamma_j^2\left(\omega^*{}_j^2 + \gamma_j^2\right)} \cdot \frac{1}{\omega^*{}_j^2}}{\sqrt{4\gamma_j^2\left(\omega^*{}_j^2 + \gamma_j^2\right)} \cdot \frac{1}{\omega^*{}_j^2}}$$

$$\text{Edit2: } \frac{\sum_j P\left(\omega^*{}_j\right) \cdot \sqrt{4\gamma_j^2\left(\omega^*{}_j^2 + \gamma_j^2\right)}}{\sqrt{4\gamma_j^2\left(\omega^*{}_j^2 + \gamma_j^2\right)}}$$

Clean	Set a			Set b			Set c		
	Clean	0-20dB	-5db	Clean	0-20dB	-5db	Clean	0-20dB	-5db
Baseline	99.02	61.34	7.94	99.02	55.75	7.65	99.06	66.14	11.49
MS	99.00 (-2.05)	66.18 (12.51)	12.50 (4.95)	99.00 (-2.05)	70.82 (34.05)	13.66 (6.51)	99.12 (5.85)	64.88 (-3.72)	13.09 (1.80)
MS+ CMC	99.03 (0.26)	68.14 (17.59)	12.98 (5.48)	99.03 (0.26)	72.23 (37.23)	13.81 (6.67)	98.98 (-9.04)	67.06 (2.72)	13.65 (2.33)
MS+ OMC	99.01 (-1.28)	68.93 (19.64)	13.05 (5.55)	99.01 (-1.28)	72.55 (37.96)	13.85 (6.66)	99.04 (-2.66)	68.16 (5.97)	13.74 (2.54)
MS+ Edit1	99.04 (2.56)	68.09 (17.47)	12.73 (5.21)	99.04 (2.56)	71.73 (36.11)	13.62 (6.46)	99.08 (2.12)	67.20 (3.12)	13.49 (2.26)
MS+ Edit2	99.05 (2.81)	69.05 (19.95)	13.11 (5.62)	99.05 (2.81)	72.92 (38.80)	14.46 (7.38)	99.10 (3.72)	68.12 (5.84)	14.19 (3.05)

- Normalize by the maximum magnitude response $k_i = 0.01 + \frac{1-0.01}{128} \cdot i$

$$u_{edit}(\omega) = \frac{u_i(\omega_j^*)}{u_i(\omega_i^*)} = \frac{\sqrt{4\gamma_i^2\left({\omega^*_i}^2 + \gamma_i^2\right)}}{\sqrt{\left({\omega^*_j}^2 - {\omega^*_i}^2\right)^2 + 4\gamma^2\left({\omega^*_i}^2 + \gamma_i^2\right)}} \frac{P(\omega_j)}{\Sigma P(\omega_i)} \frac{k_i}{k_j} \frac{\omega_j^2}{\omega_i^2} \qquad \omega^* = \sqrt{\omega^2 - 2\gamma^2}$$

$$\gamma_i = 0.1\omega_i$$

- Band-limit

$$U(\omega) = \begin{cases} u_{edit}(\omega), & \omega(\text{-}1.3) \le \omega(\Omega) \le \omega(2.5) \\ 0, & \text{otherwise} \end{cases}$$

- Estimate frequency masking curve by

$$N(\omega_i) = \sum_k P(\omega_k) U(\omega_i - \omega_k)$$

- Compute the masked spectrum by the masking operation