When $\delta_{CP} = 0^o$ and Matter Effects are neglected then,

$$P_{\nu_\mu \to \nu_e} \simeq 4c_{13}^2 s_{13}^2 s_{23}^2 \sin^2 \Delta_{31} \quad (1)$$
$$+ (8c_{12}s_{12}c_{13}^2 s_{13}s_{23}c_{23} - 8s_{12}^2 c_{13}^2 s_{13}^2 s_{23}^2) \cos\Delta_{23} \sin\Delta_{31} \sin\Delta_{21} \quad (2)$$

As $\Delta_{23} = \Delta_{21} + \Delta_{13}$ then

$$\cos\Delta_{23} = \cos\Delta_{21}\cos\Delta_{13} - \sin\Delta_{21}\sin\Delta_{13}$$

and in numerical application $\Delta_{21} = 1.27\delta m_{21}^2 L/E \approx O(10^{-2})$. So,

$$P_{\nu_\mu \to \nu_e} \simeq 4c_{13}^2 s_{13}^2 s_{23}^2 \sin^2 \Delta_{31} \quad (3)$$
$$+ (8c_{12}s_{12}c_{13}^2 s_{13}s_{23}c_{23} - 8s_{12}^2 c_{13}^2 s_{13}^2 s_{23}^2)\Delta_{21} \cos\Delta_{13} \sin\Delta_{31} \quad (4)$$

If one uses $s_{12}^2 = 0.314$ and $s_{23}^2 = 0.44$ then one realizes that in the parenthesis the second term is of the order s_{13} compared to the first term, so it may be neglected hereafter as we will focus on $s_{13} < 10^{-2}$. Then, it yields

$$P_{\nu_\mu \to \nu_e} \simeq \alpha\cos\beta\sin^2\Delta_{31} + \alpha\sin\beta\cos\Delta_{13}\sin\Delta_{31} \quad (5)$$

with

$$\alpha\cos\beta \equiv 4c_{13}^2 s_{13}^2 s_{23}^2 \quad (6)$$
$$\alpha\sin\beta \equiv 8c_{12}s_{12}c_{13}^2 s_{13}s_{23}c_{23} \quad (7)$$

It is remarkable that now the oscillation probability may be written as

$$P_{\nu_\mu \to \nu_e} \simeq \frac{\alpha}{2}\left[\cos\beta - \cos\left(2\Delta_{13} + \beta\right)\right] \quad (8)$$

The maximum of the probability is obtained at

$$\Delta_{31} = \frac{\pi}{2} - \frac{\beta}{2} \quad (9)$$
$$\text{with } \tan\beta = 2\Delta_{21}\frac{c_{12}s_{12}c_{23}}{s_{13}s_{23}} \quad (10)$$

The "usual" 2-famillies case is obtain with $\beta = 0$. In case of $E \sim 0.3$ GeV, $L \sim 130$ km and $\sin^2 2\theta_{13} = 10^{-3}$ then

$$\left(\delta m_{31}^2\right)_{max} = 2.9\,10^{-3} \text{ if } \beta = 0 \quad (11)$$
$$= 1.8\,10^{-3} \quad (12)$$