$$\begin{cases} x_1(t) = a(t)\cos\left\{2\pi\left(-0.0003(t^2-t_0^2)+0.29(t-t_0)\right)\right\}, \\ x_2(t) = a(t)\cos\left\{2\pi\left(0.0006(t^2-t_0^2)+0.109(t-t_0)\right)\right\}, \\ x_3(t) = a(t)\cos\Big\{0.42\pi(t-t_0) \\ \qquad\quad +31.7\sin\left(0.0078\pi(t-t_0)-\phi_0\right)-31.7\sin\phi_0\Big\}, \end{cases}$$