Notation	Description	Notation	Description
U	Number of users	$l_i^{\mathrm{U}}\left(\boldsymbol{r}_i, P_i\right)$	Uplink transmission delay
$\boldsymbol{X}_i$	Data collected by user i	$\boldsymbol{x}_{ik}$	FL input vector implemented by user i
y_{ik}	Output of $\boldsymbol{x}_{ik}$	$P_{\max}$	Maximum transmit power of each user
P_B	Transmit power of BS	$c_i^{\mathrm{U}}\left(\boldsymbol{r}_i, P_i\right)$	Uplink data rate of user i
P_i	Transmit power of user i	K_i	Number of samples collected by user i
R	Number of RBs	B^{D}	Total downlink bandwidth of each BS
$\boldsymbol{g}$	Global FL model	c_i^{D}	Downlink data rate of user i
$\mathcal{U}$	Set of users	l_i^{D}	Downlink transmission delay
$\boldsymbol{a} \in \mathbb{R}^{1\times U}$	User selection vector	$Z\left(\boldsymbol{g}\right)$	Data size of global FL model
λ	Learning rate	$q_i\left(\boldsymbol{r}_i, P_i\right)$	Packet error rate of user i
$\boldsymbol{R} \in \mathbb{R}^{R\times U}$	RB allocation vector of all users	$Z\left(\boldsymbol{w}_i\right)$	Data size of local FL model
γ_{T}	Delay requirement	$f\left(\boldsymbol{g}\left(\boldsymbol{a}, \boldsymbol{R}\right), \boldsymbol{x}_{ik}, y_{ik}\right)$	Loss function of FL
$\boldsymbol{w}_i$	Local FL model of user i	$e_i\left(\boldsymbol{r}_i, P_i\right)$	Energy consumption of user i
γ_{E}	Energy consumption requirement	$\boldsymbol{r}_i \in \mathbb{R}^{R\times 1}$	RB allocation vector of user i
K	Total number of training data samples	B^{U}	Bandwidth of each RB