$$\begin{aligned}\Pr\left[\mathcal{E}_{r_1,r_2,r_3}\right] = \Pr\left[\operatorname{rk}\begin{bmatrix} A^{(r_1)} \\ = \\ A^{(r_2)} \\ = \\ A^{(r_3)} \\ = \end{bmatrix} < 2t\right] &= \sum_{i=0}^{2t-1} \Pr\left[\operatorname{rk}\begin{bmatrix} A^{(r_1)} \\ =_j \\ A^{(r_2)} \\ =_j \\ A^{(r_3)} \\ =_j \end{bmatrix} = i\right] \\ &\overset{1}{=} \sum_{i=0}^{2t-1} \frac{\mathrm{NM}_{i,3t,3t}}{q^{(3t)\cdot(3t)}} \\ &= \sum_{i=0}^{2t-1} \frac{\prod_{j=0}^{i-1} \frac{\left(q^{3t}-q^j\right)^2}{q^i-q^j}}{q^{9t^2}}.\end{aligned}$$

$[n \times m]$
i
$\mathbb{F}_q$

$$\mathrm{NM}_{i,n,m} = \prod_{j=0}^{i-1} \frac{\left(q^m - q^j\right)\left(q^n - q^j\right)}{q^i - q^j}.$$