Original Equation was:

$$\sum_{k,z,n,m} [U_{l,k}U_{m,k}U_{m,z}U_{n,z}u_n + u_k] + \sum_k u_k U_{p,k}U_{s,k}$$

Split summations with a + or - in (this is a code thing rather than a maths thing):

$$\sum_{k,z,n,m} U_{l,k}U_{m,k}U_{m,z}U_{n,z}u_n + \sum_{k,z,n,m} u_k + \sum_k u_k U_{p,k}U_{s,k}$$

Simplifying the U terms using the relationship $\sum_x U^*_{bx}U_{ax} = \delta_{ab}$:

$$\sum_{k,z,n,m} U_{m,z}U_{n,z}u_n\delta_{l,m} + \sum_{k,z,n,m} u_k + \sum_k u_k U_{p,k}U_{s,k}$$

Simplifying the U terms using the relationship $\sum_x U^*_{bx}U_{ax} = \delta_{ab}$:

$$\sum_{n,m} u_n\delta_{l,m}\delta_{m,n} + \sum_{k,z,n,m} u_k + \sum_k u_k U_{p,k}U_{s,k}$$

Let them Kronecker deltas work their magic:

$$\sum_{m,l} u_n + \sum_{k,z,n,m} u_k + \sum_k u_k U_{p,k}U_{s,k}$$