The null widening method for two-dimensional plain array is deduced from the perspective of spatial virtual interference cluster. It is assumed that there are dense incoherent interference sources in the space domain, which are distributed around the actual interference source with the same power, and the distribution range is \([-W/2, W/2]\) and \([-L/2, L/2]\), respectively. The composition of the ideal covariance matrix can be obtained, 
\[
\hat{R} = \sum_{j=1}^{22} (a_j a_j^T) = \sigma^2 I
\]
where \(a_j\) are the elevation and azimuth angle corresponding to the direction of the beam center, respectively. According to Mailloux’s widening analysis, it can be concluded that the widening process of the plain array can be expressed as the Hadamard product, 
\[
\hat{R} = \hat{R} \circ \mathbf{T}
\]
where \(\mathbf{T}\) is the time aperture. For uniform rectangular plain array, 
\[
\hat{R}_j = \sum_{k=1}^{22} (a_k a_k^T) = \sigma^2 I
\]

### Summary

The traditional null widening method is extended to the more practical uniform plain array in engineering, and a method to calculate the lower bound of the consumed degree of freedom is given. The simulation results show that the proposed method can effectively widen the null in the adaptive pattern of the plain array, providing guidance for the partial adaption system.