This paper proposes an optimized enhanced spatial modulation (O-ESM) scheme, which employs a look-up table to enable dual-antenna activation and remove the conventional power-of-two restriction on antenna groups. In addition, it introduces secondary constellations to reduce the number of signal points and thereby lower the average transmit power. While the manuscript presents some potentially new ideas, I have several major concerns that need to be carefully addressed:

1. The most significant weakness of the manuscript is its lack of clarity. The proposed O-ESM scheme is not clearly elaborated. For example, in equations (1) and (2), only the parameters (p, gamma) or (m, n, alpha\_1, beta\_1) are explained in terms of how they are incorporated into the transmitted signal, while parameters such as (l, alpha\_3, beta\_4) are left unexplained. The authors should carefully review the entire paper and substantially improve the presentation, particularly the parameter mapping and modulation process.
2. The manuscript formulates an optimization problem in equation (5), which aims to maximize the minimum Euclidean distance (MED) while minimizing the average energy per transmitted codeword. However, it is unclear whether Section III actually solves this optimization problem. My impression is that Section III only introduces several modulation cases. If these cases indeed achieve the stated optimization objectives (maximizing MED and minimizing average energy), the authors should explicitly elaborate.
3. The manuscript claims that the proposed O-ESM scheme removes the power-of-two antenna restriction. However, all the examples presented are still based on power-of-two antenna configurations. To better highlight the advantages of the proposed scheme, the authors are encouraged to include and analyze cases with non-power-of-two antenna group sizes.
4. The authors argue that the proposed O-ESM reduces average transmit power by reusing constellation points across multiple different constellations. However, the underlying rationale for why this reuse leads to lower average power is not clearly explained. A more detailed elaboration is required. Furthermore, such constellation reuse raises concerns about potential ambiguity in the demodulation process (i.e., the modulation and demodulation mapping may not remain bijective). The authors should explicitly address this issue.
5. The manuscript assumes maximum-likelihood (ML) detection at the receiver, which is known to have very high computational complexity. The practical feasibility should be discussed.
6. The simulation section only reports codeword error rate (CER) performance. To better support the claims and to align with the optimization problem stated in equation (5), additional results should be included, such as figures illustrating the achieved MED and the average energy per transmitted codeword.