Major

In this paper, the authors considered the energy consumption minimization for the cell-free massive MIMO systems. Algorithms are proposed to minimize the energy consumed to transmit a bit under different conditions. Overall, this paper does offer some new ideas, and the topic is interesting. However, there are several flaws that must be carefully addressed.

1. The authors obtain an lower bound of s^2 by solving the simplified problem in (20). However, there is no detailed explanation on how to obtain the optimal solution of the problem in (20). Further clarification is necessary.
2. In Algorithm 1, the max-min fairness problem is first optimized and then the total transmit power is minimized to pursue higher energy efficiency. However, it is not clear to me whether the second optimization problem can bring significant power reduction with the optimal max-min SINR. It is necessary to compare the energy consumption before and after the second optimization in simulation results to verify the effectiveness and necessity of optimization.
3. The authors claimed that the problem in (36) is a convex problem. However, the variable b2 seems to be related to the power control coefficients, which are variables to be optimized. Hence, b2 cannot be viewed as a constant. Please further clarify the convexity of the problem in (36) and check the optimization methods in Algorithm 2.
4. This paper assumes the centralized optimization is adopted for the cell-free network. Hence, it is advisable to clarify whether the backhaul capacity has an impact on the performance of the system, as that considered in [R].
5. An additional diagram is preferred to summarize the framework and main contributions of this paper, which makes this paper more user-friendly and understandable.

[R] J. Yao, et al. “Robust beamforming design for RIS-aided cell-free systems with CSI uncertainties and capacity-limited backhaul,” IEEE Trans. Commun., early access. Doi: 10.1109/TCOMM.2023.3277539.