Channel model from literature:Yanhua Sun. Density Based User Grouping for Massive MIMO Downlink in FDD System[A]. IEEE Beijing Section、Guangdong University of Technology、University of Electronic Science and Technology of China.Proceedings of 2017 9th IEEE International Conference on Communication Software and Networks (ICCSN 2017)[C].

Simulation parameters were obtained from literature:LiYang.(2015). Resrarch on joint spatial division and multiplexing in massive mimo systems. (Doctoral dissertation).

|  |  |
| --- | --- |
| Simulation parameters | Value |
| Number of Antennas at BS | 128 |
| Number of UE | 66 |
| Antenna Array Arrangement | ULA |
| Users Spread Angle | 5° |
| Distance between Adjacent Antennas |  |
| Signal to Noise Ratio | 0~35dB |

BER1:Bit error rate of ZF precoding

BER2:Bit error rate of MMSE precoding

BER3:Bit error rate of BD precoding

BER4:Bit error rate of proposed two-stage precoding

Capacity1:Capacity of ZF precoding

Capacity2:Capacity of MMSE precoding

Capacity3:Capacity of BD precoding

Capacity4:Capacity of proposed two-stage precoding

Grouping Results:The results are grouped using the DBSCAN algorithm

Rate1:Reachable rate of ZF precoding

Rate2:Reachable rate of MMSE precoding

Rate3:Reachable rate of BD precoding

Rate4:Reachable rate of proposed two-stage precoding

SNR:Signal to Noise Ratio data