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(57) Abstract :
ADVANCED ADAPTIVE BEAMFORMING SYSTEM FOR OPTIMIZED SIGNAL INTEGRITY AND PERFORMANCE IN NEXT-GENERATION 5G+ NETWORKS ABSTRACT The advanced adaptive beamforming system 100 is designed to optimize signal integrity and performance in next-generation 5G+ networks. The system comprises an adaptive Beamforming Unit 110 that dynamically adjusts beam patterns based on real-time data. A multi-Channel Sensor Array 112 collects data on signal quality, user density, and environmental conditions. This data is processed by a centralized Control Module 114, which generates control signals for beam adjustments. The performance Optimization Engine 116 refines beamforming strategies using machine learning and predictive analytics. Real-time performance metrics are continuously received by a real-Time Feedback System 118, enabling iterative adjustments. Operators can configure and monitor the system through a network Management Interface 120, which provides real-time visibility and operational analytics. This system enhances network performance and signal quality by integrating adaptive algorithms and real-time data analysis.

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