**Developer report**

**Title:** An Improved Adaptive Beamforming Algorithm For 5G Interference-Coexistence Communication

**Title ID:** Here we need to mention Title ID of the Project.

**Objective of the Project**: Coexistence of multiple wireless systems in a 5G network can cause interference in the same frequency band and deteriorate the performance of the received signal. In this paper, a novel algorithm is proposed in antenna array processing to handle interference-coexistence communication.

**Development Procedure:**

we propose a new algorithms in LCMV. LCMV criterion takes the output power as cost function. It was first proposed by Frost[10]. And it works well in anti-interference. But the convergence rate contradicts with steady state. Many researchers have done a lot to improve the algorithm. However, there still needs more works to push it further. On this point, motivated by [9], we propose a new method on the basis of LCMV. Log-sum penalty is imposed on the cost function. We get the final formulation through mathematical derivation. Compared with traditional singly linearly constrained LMS, simulations are carried out to prove the new method’s superiority. The method outperforms other methods in convergence rate and steady state.

**Execution Procedure:**

We propose a new algorithm based on the LC-LMS in this study. We apply a log-sum penalty to the object function and perform a step-by-step theoretical analysis to arrive at the final result formula. After then, experiments are run on the Matlab platform.

The first experiment compares the newly proposed methods.In terms of convergence rate and steady state, a method with LC-LMS is used.

The results demonstrate the new method's effectiveness and superiority. In the second experiment, we look at the elements that could affect the method's performance. As can be seen, the choice of parameter t has a significant impact on algorithm performance, so t should be correctly chosen.