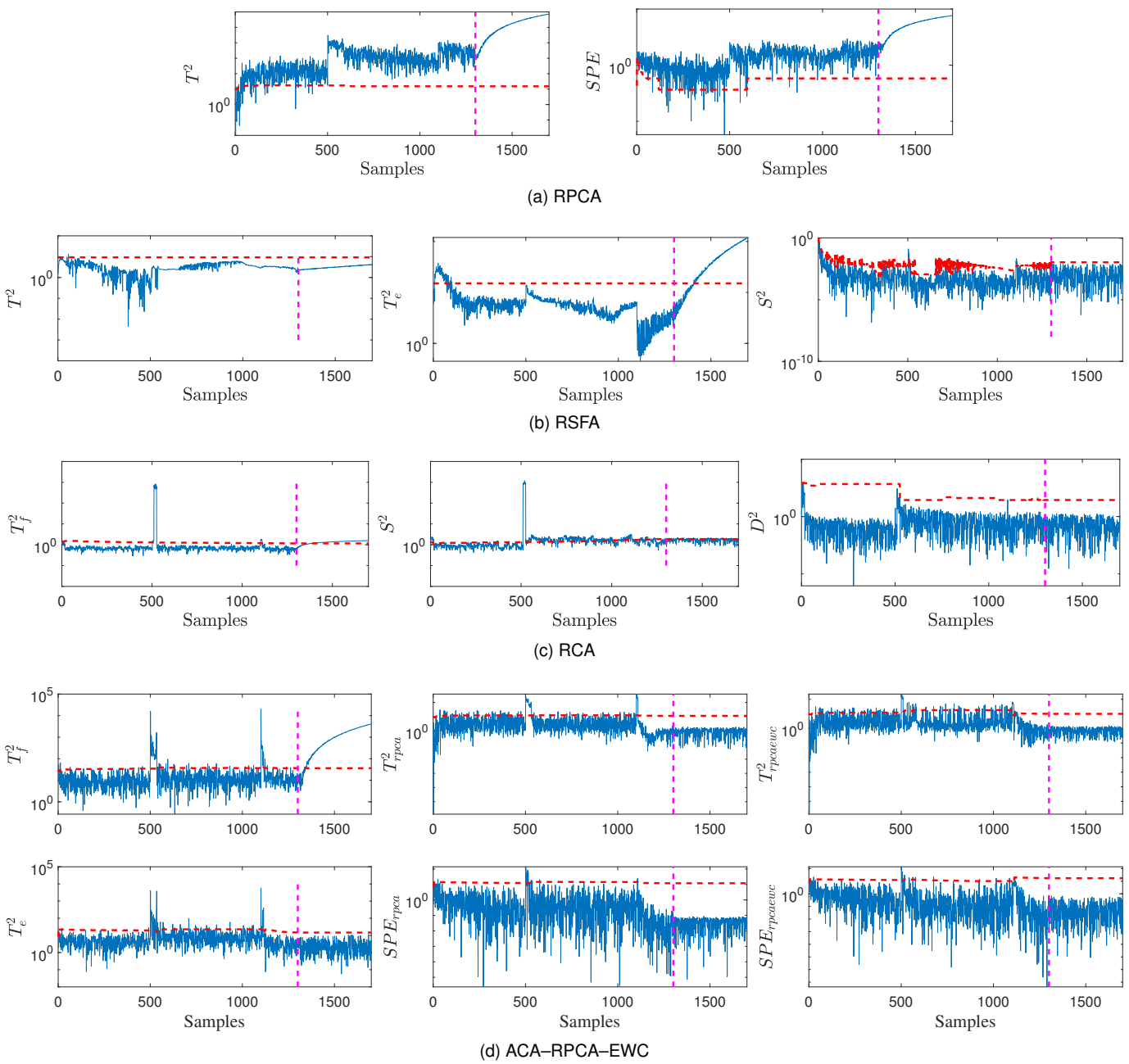

Fig. S2. Monitoring charts of Case 2: (a) RPCA fails to distinguish normal changes from real faults, and the FARs approach 100%; (b) RSFA can detect the fault if the amplitude is large enough, but the FDR is 72.75% and not satisfactory; (c) For RCA, the FDR of T^2 is 79.50%, but the FAR of S^2 is 43.46%. Normal changes are mistaken for the fault; (d) For the proposed ACA–RPCA–EWC method, z_5 is contained in T_f^2 and the fault amplitude is small at the initial stage. Thus, the FDR of T_f^2 is 89.25% and the other statistics are lower than thresholds. Besides, there are two time periods where the T_f^2 and T_e^2 are over the thresholds, it indicates that a new mode is encountered.