|  |  |  |  |
| --- | --- | --- | --- |
| **Lags** | **Observed values** |  | **Residuals of SARIMA-NARX model** |
| **Box-Ljung Q** | ***P*** | **LM-test** | ***P*** | **Box-Ljung Q** | ***P*** | **LM-test** | ***P*** |
| 1 | 87.766\*  | <0.001 | 70.650\*  | <0.001 |  | 0.049  | 0.824  | 2.121  | 0.145  |
| 3 | 95.415\*  | <0.001 | 106.390\*  | <0.001 |  | 0.661  | 0.882  | 4.766  | 4.766  |
| 6 | 265.243\*  | <0.001 | 135.230\*  | <0.001 |  | 1.795  | 0.938  | 8.011  | 0.237  |
| 9 | 318.791\*  | <0.001 | 133.750\*  | <0.001 |  | 2.943  | 0.967  | 11.773  | 0.226  |
| 12 | 441.271\*  | <0.001 | 135.470\*  | <0.001 |  | 6.033  | 0.914  | 12.888  | 0.377  |
| 15 | 481.569\*  | <0.001 | 134.720\*  | <0.001 |  | 7.063  | 0.956  | 21.576  | 0.119  |
| 18 | 538.302\*  | <0.001 | 132.580\*  | <0.001 |  | 8.409  | 0.972  | 22.043  | 0.230  |
| 21 | 560.983\*  | <0.001 | 130.140\*  | <0.001 |  | 9.423  | 0.985  | 25.564  | 0.224  |
| 24 | 627.764\*  | <0.001 | 132.820\*  | <0.001 |  | 16.766  | 0.858  | 27.226  | 0.294  |
| 27 | 653.602\*  | <0.001 | 131.180\*  | <0.001 |  | 16.803  | 0.936  | 31.425  | 0.254  |
| 30 | 713.508\*  | <0.001 | 128.530\*  | <0.001 |  | 17.248  | 0.969  | 33.063  | 0.320  |
| 33 | 737.235\*  | <0.001 | 125.880\*  | <0.001 |  | 21.257  | 0.943  | 36.247  | 0.320  |
| 36 | 816.771\*  | <0.001 | 125.850\*  | <0.001 | 　 | 21.540  | 0.973  | 39.305  | 0.324  |

Note:\* denotes the Box-Ljung Q and LM tests are statistically significant at the 5% level