**Auto Test Explanation**

1. **Test result error definition**

The set of all test data result error is ±5%, but except inject and spark test in backup mode that is ±10%.

1. **Test fail item explanation**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **FTP Name** | **Test case** | **Fail test explanation** |
| 1 | Input&Output | Test case 4.5  Test case 4.6  Test case 4.7 | The VVT1, VVT2 and Fuel\_CSP frequency test fail is due to the duty is 100% that the signal hold at 0V, so the OPAL-RT can’t capture the frequency. |
| Test case 6 | The ETC duty test fail is due to the minimum sample accuracy of OPAL-RT is no less than 1%. |
| 2 | 58X | Test case 3.5  Test case 3.6 | The crank teeth and the small teeth will be filtered by eTPU at rpm =5000 and 6000, so that the counter of more teeth will be 0 but the counter of less teeth will be non-zero. |
| 3 | VCPC | Test case 1  Test case 2 | Because the minimum sample accuracy of ECM is 1degree, so the CAM phase angle test at low angle will be not meet the set error(+/-5%). |
| 4 | Inject\_Test | Test case 2  Test case 3 | The inject end angle test fail is due to the start inject action was not exceed more than 720 degrees relative to the reference position, so in order to meet the correct inject time that it has to decrease the inject end angle. |
| 5 | Spark\_Test | Test case 2  Test case 3 | 1. The spark dwell time test fail is due to the limit of maximum dwell time =24S\*0.8/rpm ms, and because of the spark is toggled at each end of ignition, so the ignition coil closed position will not exceeded the last spark position, then the dwell time will be reduced at high engine speed or long target dwell time. 2. The spark advance angle test fail at the target spark advance angle =0 degree is due to the error of bench that sample the angle signal, so that the test at low advance angle will be not meet the test error range. |
| 6 | ThroughPutTime | Test case 1  Test case 2  Test case 3 | The maximum execution time of 1ms loop, 10ms loop and feed watch dog exceed the set range that the LLD integrate with the Chery HLS. |