|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANALOG MULTIPLIER - in case of DC INPUT( slow dc with 100Hz & 50Hz frequency )** | | | | | | |
| **Various Detected Faults in Analog Multiplier in the presence of faults with deviations (5% – 15%) & (20%-46%)** | | | | | | |
| **Injected Faults** | **=500, = 0.0103**  **Optimal Order - 16th** | | **=1000, = 0.0108**  **Optimal Order - 15th** | | **=2000, = 0.0110**  **Optimal Order - 15th** | |
| **No. of Coefficients Out of Bound** | **Fault Detection Status** | **No. of Coefficients Out of Bound** | **Fault Detection Status** | **No. of Coefficients Out of Bound** | **Fault Detection Status** |
| R11 6%  **↑** | 10 | **√** | 12 | **√** | 3 | **√** |
| R11 6%  **↓** | 2 | **√** | 8 | **√** | 2 | **√** |
| R12 7%  **↑** | 4 | **√** | 3 | **√** | 2 | **√** |
| R12 7%  **↓** | 6 | **√** | 9 | **v** | 5 | **√** |
| R21 8%  **↑** | 2 | **√** | 4 | **√** | 2 | **√** |
| R21 8%  **↓** | 12 | **√** | 13 | **√** | 2 | **√** |
| R22 9%  **↑** | 12 | **√** | 8 | **√** | 2 | **√** |
| R22 9% **↓** | 1 | **√** | 3 | **√** | 0 | **X** |
| R31 10% **↑** | 8 | **√** | 7 | **√** | 2 | **√** |
| R31 10% **↓** | 6 | **√** | 8 | **√** | 2 | **√** |
| R32 11% **↑** | 2 | **√** | 7 | **√** | 3 | **√** |
| R32 11% **↓** | 10 | **√** | 6 | **√** | 3 | **√** |
| R41 12% **↑** | 5 | **√** | 7 | **√** | 2 | **√** |
| R41 12% **↓** | 5 | **√** | 13 | **√** | 2 | **√** |
| R42 13% ↑ | 10 | **√** | 8 | **√** | 4 | **√** |
| R42 13% **↓** | 1 | **√** | 4 | **√** | 3 | **√** |
| R51 14% **↑** | 1 | **√** | 2 | **√** | 0 | **X** |
| R51 14% **↓** | 13 | **√** | 12 | **√** | 4 | **√** |
| R52 15% **↑** | 12 | **√** | 14 | **√** | 7 | **√** |
| R52 15% **↓** | 1 | **√** | 3 | **√** | 0 | **X** |
| R11 20% **↑** | 13 | **√** | 16 | **√** | 9 | **√** |
| R11 20% **↓** | 1 | **√** | 2 | **√** | 0 | **X** |
| R12 25% **↑** | 1 | **√** | 2 | **√** | 0 | **X** |
| R12 25% **↓** | 28 | **√** | 43 | **√** | 28 | **√** |
| R21 30% **↑** | 3 | **√** | 6 | **√** | 2 | **√** |
| R21 30% **↓** | 15 | **√** | 25 | **√** | 10 | **√** |
| R22 35% **↑** | 16 | **√** | 22 | **√** | 10 | **√** |
| R22 35% **↓** | 5 | **√** | 4 | **√** | 5 | **√** |
| R31 36% **↑** | 9 | **√** | 11 | **√** | 7 | **√** |
| R31 36% **↓** | 3 | **√** | 2 | **√** | 1 | **√** |
| R32 38% **↑** | 2 | **√** | 4 | **√** | 1 | **√** |
| R32 38% **↓** | 22 | **√** | 46 | **√** | 35 | **√** |
| R41 40% **↑** | 3 | **√** | 5 | **√** | 1 | **√** |
| R41 40% **↓** | 13 | **√** | 12 | **√** | 9 | **√** |
| R42 42% **↑** | 19 | **√** | 23 | **√** | 13 | **√** |
| R42 42% **↓** | 2 | **√** | 3 | **√** | 1 | **√** |
| R51 44% **↑** | 3 | **√** | 4 | **√** | 3 | **√** |
| R51 44% **↓** | 60 | **√** | 68 | **√** | 57 | **√** |
| R52 46% **↑** | 42 | **√** | 30 | **√** | 30 | **√** |
| R52 46% **↓** | 5 | **√** | 9 | **√** | 3 | **√** |