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TSP Quality Guidelines

If your team does not have historical data, use these guidelines as standard planning factors. Use these initial criteria until you have historical TSP data and can develop your own. In all cases, use your judgment. If some guideline does not fit your case, use your best estimate instead.

|  |  |  |
| --- | --- | --- |
| **Measure** | **Goal** | **Comments** |
| **Percent Defect Free (PDF)** |  |  |
| Compile | > 10% |  |
| Unit Test | > 50% |  |
| Integration Test | > 70% |  |
| System Test | > 90% |  |
| **Defects/KLOC:** |  |  |
| Total defects injected | 75 - 150 | If not PSP-trained, use 100 to 200. |
| Compile | < 10 | All defects |
| Unit Test | < 5 | All major defects (in source LOC) |
| Integration Test | < 0.5 | All major defects (in source LOC) |
| System Test | < 0.2 | All major defects (in source LOC) |
| **Defect Ratios** |  |  |
| Detailed design review defects /unit test defects | > 2.0 | All major defects (in source LOC) |
| Code review defects/compile defects | > 2.0 | All major defects (in source LOC) |
| **Development Time Ratios** |  |  |
| Requirements inspection/requirements time | > 0.25 | Elicitation in requirements time |
| High-level design inspection/high-level design time | > 0.5 | Design work only, not studies |
| Detailed design/coding time | > 1.00 |  |
| Detailed design review/detailed design time | > 0.5 |  |
| Code review/code time | > 0.5 |  |
| **Review and Inspection Rates** |  |  |
| Requirements pages/hour | < 2 | Single-spaced text pages |
| High-level design pages/hour | < 5 | Formatted design logic |
| Detailed design text lines/hour | < 100 | Pseudocode ~ equal to 3 LOC |
| Code LOC/hour | < 200 | Logical LOC |

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| --- | --- | --- |
| **Measure** | **Goal** | **Comments** |
| **Defect Injection and Removal Rates** |  |  |
| Requirements defects injected/hour | 0.25 | Only major defects |
| Requirements inspection defects removed/hour | 0.5 | Only major defects |
| High-level design defects injected/hour | 0.25 | Only major defects |
| High-level design inspection defects removed/hour | 0.5 | Only major defects |
| Detailed design defects injected/hour | 0.75 | Only design defects |
| Detailed design review defects removed/hour | 1.5 | Only design defects |
| Detailed design inspection defects removed/hour | 0.5 | Only design defects |
| Code defects injected/hour | 2.0 | All defects |
| Code review defects removed/hour | 4.0 | All defects in source LOC |
| Compile defects injected/hour | 0.3 | Any defects |
| Code inspection defects removed/hour | 1.0 | All defects in source LOC |
| Unit test defects injected/hour | 0.067 | Any defects |
| **Phase Yields** |  |  |
| Team requirements inspections | ~ 70% | Not counting editorial comments |
| Design reviews and inspections | ~ 70% | Using state analysis, trace tables |
| Code reviews and inspections | ~ 70% | Using personal checklists |
| Compiling | ~ 50% | 90+ % of syntax defects |
| Unit test at 5 or less defects/KLOC | ~ 90% | If high defects/KLOC use 50-75% |
| Integration and system test at < 1.0 defects/KLOC | ~ 80% | If high defects/KLOC use 30-65% |
| Before compile | >75% | Assuming sound design methods |
| Before unit test | > 85% | Assuming logic checks in reviews |
| Before integration test | > 97.5% | For small products, 1 defect max. |
| Before system test | > 99% | For small products, 1 defect max. |