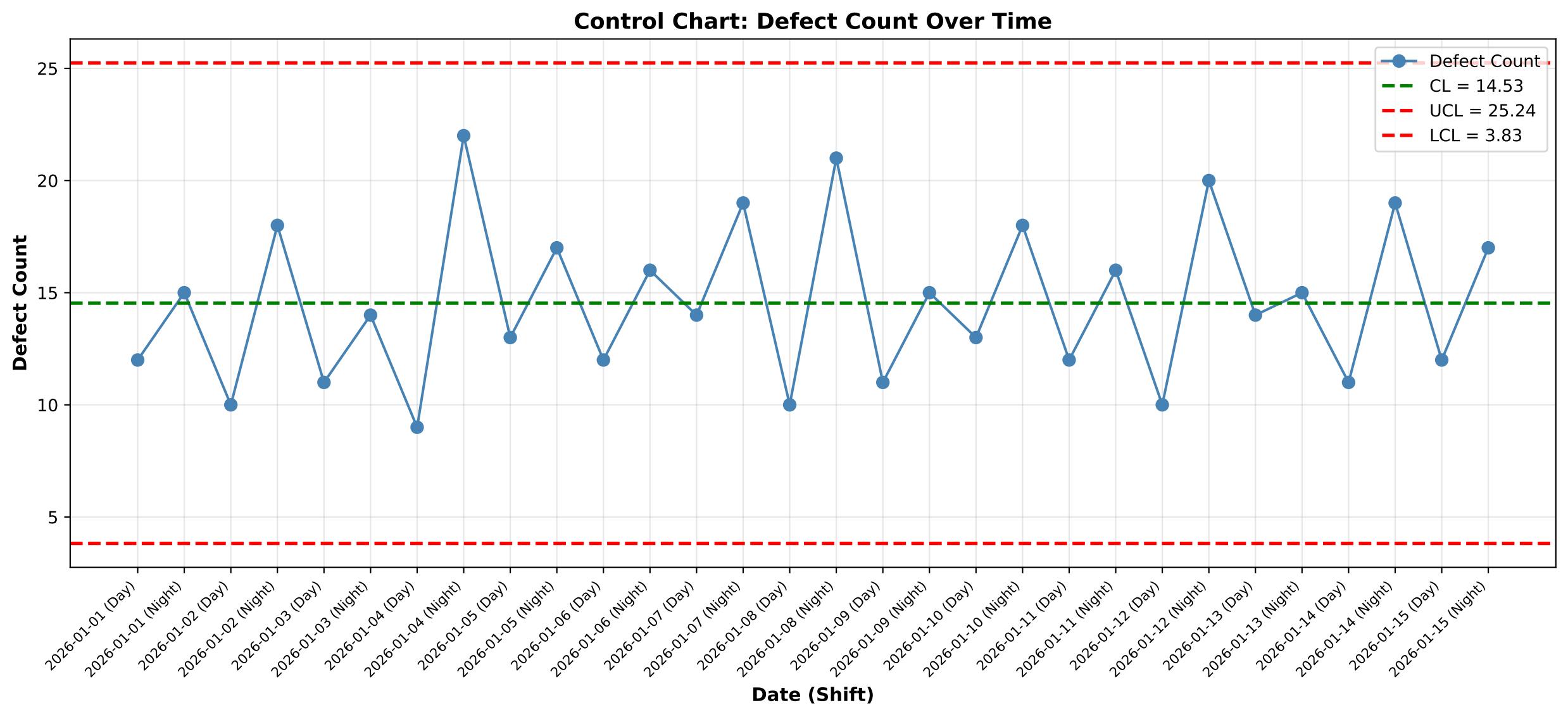
Control Chart: Defect Count Over Time
Defect Count
CL = 14.53
UCL = 25.24
LCL = 3.83
Defect Count
25
20
15
10
5
2026-01-01 (Day)
2026-01-01 (Night)
2026-01-02 (Day)
2026-01-02 (Night)
2026-01-03 (Day)
2026-01-03 (Night)
2026-01-04 (Day)
2026-01-04 (Night)
2026-01-05 (Day)
2026-01-05 (Night)
2026-01-06 (Day)
2026-01-06 (Night)
2026-01-07 (Day)
2026-01-07 (Night)
2026-01-08 (Day)
2026-01-08 (Night)
2026-01-09 (Day)
2026-01-09 (Night)
2026-01-10 (Day)
2026-01-10 (Night)
2026-01-11 (Day)
2026-01-11 (Night)
2026-01-12 (Day)
2026-01-12 (Night)
2026-01-13 (Day)
2026-01-13 (Night)
2026-01-14 (Day)
2026-01-14 (Night)
2026-01-15 (Day)
2026-01-15 (Night)
Date (Shift)

```
DEFECT ANALYSIS - STATISTICAL SUMMARY
================================================================================

OVERALL DEFECT RATE STATISTICS:
------------------------------------------------------
  Number of observations:          30
  Mean defect rate:                0.014512 (1.4512%)
  Standard deviation:              0.003522
  95% Confidence Interval:         [0.013197, 0.015827]

CONTROL CHART STATISTICS (Defect Count):
------------------------------------------------------
  Center Line (CL):                14.53
  Upper Control Limit (UCL):       25.24
  Lower Control Limit (LCL):       3.83
  Standard deviation:              3.57

INDEPENDENT T-TEST: DAY vs NIGHT SHIFTS
------------------------------------------------------
  Day Shift:
    - N:                           15
    - Mean defect rate:            0.011559 (1.1559%)
    - Std deviation:               0.001375

  Night Shift:
    - N:                           15
    - Mean defect rate:            0.017464 (1.7464%)
    - Std deviation:               0.002263

  T-statistic:                     -8.6358
  P-value:                         0.000000

INTERPRETATION:
------------------------------------------------------
  [SIGNIFICANT] Statistically significant difference found (p < 0.05)
  Night shift has higher defect rate by 0.5905%

================================================================================
Report generated: 2026-01-29 13:36:49
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```