## CHERRY

**Chapter 5**

**Findings, Results, and Analysis**

5.2 Electrical Audit

5.2.3 Voltage drop calculation

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **VOLTAGE DROP SUMMARY COMPUTATION** | | | | | | | | | | | | **CHERRY IN LINE BOOSTER STATION** | | | | | | | | | | | |  |  |  |  |  |  |  |  |  |  |  | | FEEDER CABLES VOLTAGE DROP | | | | | | | | | | | | Item | From | To | Wire Size, mm² | I | Length Meters | R Ω/305m | X Ω/305m | VD | %VD | REMARKS | | | 1 | Pole Mounted Transformer 50kVA,3Ø | ATS PANEL | 250.0 | 425 | 15.52 | 0.048 | 0.027 | 2.060 | 0.43% | WITHIN LIMTS | | 2 | MTS PANEL | ECB 250A | 250.0 | 425 | 7 | 0.048 | 0.027 | 0.929 | 0.19% | WITHIN LIMTS | | 3 | ECB 30A, 2P | DRY TYPE TRANSFORMER 2.5KVA | 5.5 | 40 | 4.2 | 1.2 | 0.063 | 1.324 | 0.55% | WITHIN LIMTS | | 4 | DRY TYPE TRANSFORMER 2.5KVA, 1Ø | UPS PANEL | 5.5 | 40 | 4 | 1.2 | 0.063 | 1.261 | 0.53% | WITHIN LIMTS | | 5 | MCCB 100A, 3P | 30HP MOTOR | 30.0 | 115 | 10 | 0.2 | 0.057 | 1.357 | 0.28% | WITHIN LIMTS | |  | POLE MOUNTED TO 30 HP MOTOR | | | | | | | 3.417 | 0.71% | WITHIN LIMITS |   **BASIS:** |  |  |  |  |  |  |  |  |  |
|  | PEC 2017 ARTICLE 2.15.1.2(A)(1)(b)FPN NO.2 | | | | | | | | | |
|  | Conductors for feeders, as defined in Article1.1, sized to prevent a voltage drop exceeding three | | | | | | | | | |
|  | (3) percent at the farthest outlet of power, heating and lighting loads, or combinations of such | | | | | | | | | |
|  | loads,and where the maximum total voltage drop on both feeders and branch circuits to the | | | | | | | | | |
|  | farthest outlet does not exceed five (5) percent , will provide reasonable efficiency. | | | | | | | | | |