**Lampiran Data dan Hasil Perhitungan Indeks Keandalan pada Gardu Induk Kuta**

**Lampiran 1**

Tabel 1. Data Panjang Saluran Kuta

|  |  |  |
| --- | --- | --- |
| No. | Saluran | Panjang Saluran (km) |
| 1 | Line 1 | 0,4 |
| 2 | Line 2 | 0,7 |
| 3 | Line 3 | 0,45 |
| 4 | Line 4 | 0,5 |
| 5 | Line 5 | 1 |
| 6 | Line 6 | 2,05 |
| 7 | Line 7 | 1,24 |
| 8 | Line 8 | 0,98 |
| 9 | Line 9 | 1,6 |
| 10 | Line 10 | 1,74 |
| 11 | Line 11 | 1,54 |
| 12 | Line 12 | 1,65 |
| 13 | Line 13 | 0,985 |
| 14 | Line 14 | 2 |
| 15 | Line 15 | 1,4 |
| 16 | Line 16 | 0,75 |
| 17 | Line 17 | 1,15 |
| 18 | Line 18 | 1,3 |
| 19 | Line 19 | 1,55 |
| 20 | Line 20 | 1,54 |
| 21 | Line 21 | 1,54 |
| 22 | Line 22 | 2,2 |
| 23 | Line 23 | 0,98 |
| 24 | Line 24 | 1,62 |
| 25 | Line 25 | 1,95 |
| 26 | Line 26 | 2 |
| 27 | Line 27 | 1,8 |
| 28 | Line 28 | 1,95 |
| 29 | Line 29 | 1,765 |
| 30 | Line 30 | 1,25 |
| 31 | Line 31 | 2,225 |
| 32 | Line 32 | 2,05 |
| 33 | Line 33 | 1,85 |
| 34 | Line 34 | 1,765 |
| 35 | Line 35 | 2,1 |
| 36 | Line 36 | 2,05 |
| 37 | Line 37 | 1,54 |
| 38 | Line 38 | 1,25 |
| 39 | Line 39 | 2,2 |
| 40 | Line 40 | 1,8 |
| 41 | Line 41 | 1,45 |
| 42 | Line 42 | 1,6 |
| 43 | Line 43 | 1,65 |
| 44 | Line 44 | 2,15 |
| 45 | Line 45 | 1,7 |
| 46 | Line 46 | 1,15 |
| 47 | Line 47 | 1,62 |
| 48 | Line 48 | 1,75 |
| 49 | Line 49 | 2,1 |
| 50 | Line 50 | 1,895 |
| 51 | Line 51 | 1,51 |
| 52 | Line 52 | 1,2 |
| 53 | Line 53 | 1,65 |
| 54 | Line 54 | 1,65 |
| 55 | Line 55 | 0,985 |
| 56 | Line 56 | 1,65 |
| 57 | Line 57 | 1,5 |
| 58 | Line 58 | 1,55 |
| 59 | Line 59 | 1,68 |
| 60 | Line 60 | 2,065 |
| 61 | Line 61 | 1,68 |
| 62 | Line 62 | 1,205 |

Tabel 2. Jumlah Beban tiap Load Point Penyulang Kuta

|  |  |  |  |
| --- | --- | --- | --- |
| Load Point | Trafo | Daya (KVA) | Jumlah pelanggan |
| LP1 | PB027 | 100 | 365 |
| LP2 | PB036 | 50 | 451 |
| LP3 | PB037 | 50 | 269 |
| LP4 | PB039 | 100 | 428 |
| LP5 | PB044 | 100 | 20 |
| LP6 | PB048 | 100 | 399 |
| LP7 | PB052 | 50 | 22 |
| LP8 | PB053 | 50 | 218 |
| LP9 | PB055 | 50 | 116 |
| LP10 | PB071 | 50 | 141 |
| LP11 | PB073 | 50 | 92 |
| LP12 | PB074 | 100 | 91 |
| LP13 | PB084 | 50 | 56 |
| LP14 | PB085 | 50 | 61 |
| LP15 | PB086 | 50 | 101 |
| LP16 | PB087 | 100 | 50 |
| LP17 | PB089 | 50 | 0 |
| LP18 | PB102 | 100 | 4 |
| LP19 | PJ004 | 250 | 836 |
| LP20 | PJ017 | 250 | 254 |
| LP21 | PJ023 | 160 | 554 |
| LP22 | PJ034 | 250 | 133 |
| LP23 | PJ042 | 100 | 443 |
| LP24 | PJ043 | 160 | 676 |
| LP25 | PJ048 | 200 | 382 |
| LP26 | PJ053 | 160 | 89 |
| LP27 | PJ064 | 100 | 169 |
| LP28 | PJ074 | 160 | 147 |
| LP29 | PJ075 | 100 | 201 |
| LP30 | PJ076 | 100 | 178 |
| LP31 | PJ083 | 100 | 323 |
| LP32 | PJ084 | 100 | 103 |
| LP33 | PJ085 | 100 | 61 |
| LP34 | PJ087 | 100 | 108 |
| LP35 | PJ094 | 100 | 20 |
| LP36 | PJ095 | 100 | 9 |
| LP37 | PJ097 | 100 | 99 |
| LP38 | PJ098 | 100 | 135 |
| LP39 | PJ108 | 100 | 93 |
| LP40 | PJ109 | 100 | 27 |
| LP41 | PJ113 | 100 | 2 |
| LP42 | PJ114 | 250 | 2 |
| LP43 | PJ122 | 50 | 15 |
| LP44 | PJ124 | 50 | 3 |
| LP45 | PJ127 | 100 | 1 |
| LP46 | PJ128 | 100 | 6 |
| LP47 | PJ132 | 100 | 8 |
| LP48 | PJ134 | 100 | 3 |
| LP49 | PJ135 | 160 | 2 |
| LP50 | PJ138 | 100 | 6 |
| LP51 | PJ139 | 100 | 5 |

Tabel 3. Nilai *Failure rate (λ)* dan *Durasi gangguan peralatan* (U)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Saluran | Panjang (km) | *Failure Rate* | λ | *r* | U |
| CB | - | 0,004 | 0,004 | 10 | 0,04 |
| TDA | - | 0,005 | 0,005 | 10 | 0,05 |
| Recloser 1 | - | 0,005 | 0,005 | 10 | 0,05 |
| Recloser 2 | - | 0,005 | 0,005 | 10 | 0,05 |
| FCO 1 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 2 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 3 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 4 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 5 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 6 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 7 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 8 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 9 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 10 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 11 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 12 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 13 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 14 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 15 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 16 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 17 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 18 | - | 0,003 | 0,003 | 10 | 0,03 |
| FCO 19 | - | 0,003 | 0,003 | 10 | 0,03 |
| Line 1 | 0.4 | 0,2 | 0,08 | 3 | 0,24 |
| Line 2 | 0,7 | 0,2 | 0,14 | 3 | 0,42 |
| Line 3 | 0,45 | 0,2 | 0,09 | 3 | 0,27 |
| Line 4 | 0,5 | 0,2 | 0,1 | 3 | 0,3 |
| Line 5 | 1 | 0,2 | 0,2 | 3 | 0,6 |
| Line 6 | 2,05 | 0,2 | 0,41 | 3 | 1,23 |
| Line 7 | 1,24 | 0,2 | 0,248 | 3 | 0,744 |
| Line 8 | 0,98 | 0,2 | 0,19 | 3 | 0,57 |
| Line 9 | 1,6 | 0,2 | 0,32 | 3 | 0,96 |
| Line 10 | 1,74 | 0,2 | 0,348 | 3 | 1,04 |
| Line 11 | 1,54 | 0,2 | 0,308 | 3 | 0,924 |
| Line 12 | 1,65 | 0,2 | 0,33 | 3 | 0,99 |
| Line 13 | 0,985 | 0,2 | 0,196 | 3 | 0,558 |
| Line 14 | 2 | 0,2 | 0,4 | 3 | 1,2 |
| Line 15 | 1,4 | 0,2 | 0,28 | 3 | 0,84 |
| Line 16 | 0,75 | 0,2 | 0,15 | 3 | 0,45 |
| Line 17 | 1,15 | 0,2 | 0,23 | 3 | 0,69 |
| Line 18 | 1,3 | 0,2 | 0,26 | 3 | 0,78 |
| Line 19 | 1,55 | 0,2 | 0,31 | 3 | 0,93 |
| Line 20 | 1,54 | 0,2 | 0,308 | 3 | 0,924 |
| Line 21 | 1,54 | 0,2 | 0,308 | 3 | 0,924 |
| Line 22 | 2,2 | 0,2 | 0,44 | 3 | 1,32 |
| Line 23 | 0,98 | 0,2 | 0,19 | 3 | 0,57 |
| Line 24 | 1,62 | 0,2 | 0,324 | 3 | 0,972 |
| Line 25 | 1,95 | 0,2 | 0,39 | 3 | 1,17 |
| Line 26 | 2 | 0,2 | 0,4 | 3 | 1,2 |
| Line 27 | 1,8 | 0,2 | 0,36 | 3 | 1,08 |
| Line 28 | 1,95 | 0,2 | 0,39 | 3 | 1,17 |
| Line 29 | 1,765 | 0,2 | 0,353 | 3 | 1,059 |
| Line 30 | 1,25 | 0,2 | 0,25 | 3 | 0,75 |
| Line 31 | 2,225 | 0,2 | 0,445 | 3 | 1,335 |
| Line 32 | 2,05 | 0,2 | 0,41 | 3 | 1,23 |
| Line 33 | 1,85 | 0,2 | 0,37 | 3 | 1,11 |
| Line 34 | 1,765 | 0,2 | 0,353 | 3 | 1,059 |
| Line 35 | 2,1 | 0,2 | 0,42 | 3 | 1,26 |
| Line 36 | 2,05 | 0,2 | 0,41 | 3 | 1,23 |
| Line 37 | 1,54 | 0,2 | 0,3 | 3 | 0,9 |
| Line 38 | 1,25 | 0,2 | 0,25 | 3 | 0,75 |
| Line 39 | 2,2 | 0,2 | 0,41 | 3 | 1,23 |
| Line 40 | 1,8 | 0,2 | 0,36 | 3 | 1,08 |
| Line 41 | 1,45 | 0,2 | 0,29 | 3 | 0,87 |
| Line 42 | 1,6 | 0,2 | 0,32 | 3 | 0,96 |
| Line 43 | 1,65 | 0,2 | 0,33 | 3 | 0,99 |
| Line 44 | 2,15 | 0,2 | 0,43 | 3 | 1,29 |
| Line 45 | 1,7 | 0,2 | 0,34 | 3 | 1,02 |
| Line 46 | 1,15 | 0,2 | 0,23 | 3 | 0,69 |
| Line 47 | 1,62 | 0,2 | 0,324 | 3 | 0,972 |
| Line 48 | 1,75 | 0,2 | 0,35 | 3 | 1,05 |
| Line 49 | 2,1 | 0,2 | 0,42 | 3 | 1,26 |
| Line 50 | 1,895 | 0,2 | 0,379 | 3 | 1,137 |
| Line 51 | 1,51 | 0,2 | 0,302 | 3 | 0,906 |
| Line 52 | 1,2 | 0,2 | 0,24 | 3 | 0,72 |
| Line 53 | 1,65 | 0,2 | 0,33 | 3 | 0,99 |
| Line 54 | 1,65 | 0,2 | 0,33 | 3 | 0,99 |
| Line 55 | 0,985 | 0,2 | 0,19 | 3 | 0,57 |
| Line 56 | 1,65 | 0,2 | 0,33 | 3 | 0,99 |
| Line 57 | 1.5 | 0.2 | 0.3 | 3 | 0.9 |
| Line 58 | 1,55 | 0,2 | 0,31 | 3 | 0,93 |
| Line 59 | 1,68 | 0,2 | 0,336 | 3 | 1,008 |
| Line 60 | 2,065 | 0,2 | 0,41 | 3 | 1,23 |
| Line 61 | 1,68 | 0,2 | 0,336 | 3 | 1,008 |
| Line 62 | 1,205 | 0,2 | 0,241 | 3 | 0,723 |
| Total |  |  | 19,18 | 416 | 58,06 |

Tabel 4. Hasil Perhitungan Keandalan Penyulang Kuta

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| LP | λ | U | N | SAIFI  (gangguan/tahun) | SAIDI (Jam/tahun) |
| 1 | 19,18 | 58,06 | 365 | 0,87 | 2,64 |
| 2 | 19,18 | 58,06 | 451 | 1,08 | 3,26 |
| 3 | 19,18 | 58,06 | 269 | 0,64 | 1,95 |
| 4 | 19,18 | 58,06 | 428 | 1,02 | 3,10 |
| 5 | 19,18 | 58,06 | 20 | 0,05 | 0,14 |
| 6 | 19,18 | 58,06 | 399 | 0,95 | 2,89 |
| 7 | 19,18 | 58,06 | 22 | 0,05 | 0,16 |
| 8 | 19,18 | 58,06 | 218 | 0,52 | 1,58 |
| 9 | 19,18 | 58,06 | 116 | 0,28 | 0,84 |
| 10 | 19,18 | 58,06 | 141 | 0,34 | 1,02 |
| 11 | 19,18 | 58,06 | 92 | 0,22 | 0,67 |
| 12 | 19,18 | 58,06 | 91 | 0,22 | 0,66 |
| 13 | 19,18 | 58,06 | 56 | 0,13 | 0,41 |
| 14 | 19,18 | 58,06 | 61 | 0,15 | 0,44 |
| 15 | 19,18 | 58,06 | 101 | 0,24 | 0,73 |
| 16 | 19,18 | 58,06 | 50 | 0,12 | 0,36 |
| 17 | 19,18 | 58,06 | 48 | 0,11 | 0,35 |
| 18 | 19,18 | 58,06 | 4 | 0,01 | 0,03 |
| 19 | 19,18 | 58,06 | 836 | 2,00 | 6,05 |
| 20 | 19,18 | 58,06 | 254 | 0,61 | 1,84 |
| 21 | 19,18 | 58,06 | 554 | 1,32 | 4,01 |
| 22 | 19,18 | 58,06 | 133 | 0,32 | 0,96 |
| 23 | 19,18 | 58,06 | 443 | 1,06 | 3,21 |
| 24 | 19,18 | 58,06 | 676 | 1,62 | 4,89 |
| 25 | 19,18 | 58,06 | 382 | 0,91 | 2,76 |
| 26 | 19,18 | 58,06 | 89 | 0,21 | 0,64 |
| 27 | 19,18 | 58,06 | 169 | 0,4 | 1,22 |
| 28 | 19,18 | 58,06 | 147 | 0,35 | 1,06 |
| 29 | 19,18 | 58,06 | 201 | 0,48 | 1,45 |
| 30 | 19,18 | 58,06 | 178 | 0,43 | 1,29 |
| 31 | 19,18 | 58,06 | 323 | 0,77 | 2,34 |
| 32 | 19,18 | 58,06 | 103 | 0,25 | 0,75 |
| 33 | 19,18 | 58,06 | 61 | 0,15 | 0,44 |
| 34 | 19,18 | 58,06 | 108 | 0,26 | 0,78 |
| 35 | 19,18 | 58,06 | 20 | 0,05 | 0,14 |
| 36 | 19,18 | 58,06 | 9 | 0,02 | 0,07 |
| 37 | 19,18 | 58,06 | 99 | 0,24 | 0,72 |
| 38 | 19,18 | 58,06 | 135 | 0,32 | 0,98 |
| 39 | 19,18 | 58,06 | 93 | 0,22 | 0,67 |
| 40 | 19,18 | 58,06 | 27 | 0,06 | 0,2 |
| 41 | 19,18 | 58,06 | 2 | 0,005 | 0,01 |
| 42 | 19,18 | 58,06 | 2 | 0,005 | 0,01 |
| 43 | 19,18 | 58,06 | 15 | 0,036 | 0,11 |
| 44 | 19,18 | 58,06 | 3 | 0,01 | 0,02 |
| 45 | 19,18 | 58,06 | 1 | 0,002 | 0,01 |
| 46 | 19,18 | 58,06 | 6 | 0,01 | 0,04 |
| 47 | 19,18 | 58,06 | 8 | 0,02 | 0,06 |
| 48 | 19,18 | 58,06 | 3 | 0,01 | 0,02 |
| 49 | 19,18 | 58,06 | 2 | 0,005 | 0,01 |
| 50 | 19,18 | 58,06 | 6 | 0,01 | 0,04 |
| 51 | 19,18 | 58,06 | 5 | 0,01 | 0,04 |
| TOTAL |  |  |  | 19,18 | 58,06 |

Tabel 5. Jumlah Pelanggan Section 1

|  |  |  |  |
| --- | --- | --- | --- |
| Load Point | Trafo | Daya (KVA) | Jumlah pelanggan |
| 1 | PB027 | 100 | 365 |
| 2 | PB036 | 50 | 451 |
| 3 | PB037 | 50 | 269 |
| 4 | PB039 | 100 | 428 |
| 5 | PB044 | 100 | 20 |
| 6 | PB048 | 100 | 399 |
| 7 | PB052 | 50 | 22 |
| 8 | PB053 | 50 | 218 |
| 9 | PB055 | 50 | 116 |
| 10 | PB071 | 50 | 141 |
| 11 | PB073 | 50 | 92 |
| 12 | PB074 | 100 | 91 |
| 13 | PB084 | 50 | 56 |
| 14 | PB085 | 50 | 61 |
| 15 | PB086 | 50 | 101 |
| 16 | PB087 | 100 | 50 |
| 17 | PB089 | 50 |  |
| 18 | PB102 | 100 | 4 |
| 19 | PJ004 | 250 | 836 |

Tabel 6. Jumlah Pelanggan Section 2

|  |  |  |  |
| --- | --- | --- | --- |
| Load Point | Trafo | Daya (KVA) | Jumlah pelanggan |
| 1 | PJ017 | 250 | 254 |
| 2 | PJ023 | 160 | 554 |
| 3 | PJ034 | 250 | 133 |
| 4 | PJ042 | 100 | 443 |
| 5 | PJ043 | 160 | 676 |
| 6 | PJ048 | 200 | 382 |
| 7 | PJ053 | 160 | 89 |
| 8 | PJ064 | 100 | 169 |
| 9 | PJ074 | 160 | 147 |
| 10 | PJ075 | 100 | 201 |
| 11 | PJ076 | 100 | 178 |
| 12 | PJ083 | 100 | 323 |
| 13 | PJ084 | 100 | 103 |
| 14 | PJ085 | 100 | 61 |
| 15 | PJ087 | 100 | 108 |
| 16 | PJ094 | 100 | 20 |
| 17 | PJ095 | 100 | 9 |
| 18 | PJ097 | 100 | 99 |
| 19 | PJ098 | 100 | 135 |
| 20 | PJ108 | 100 | 93 |
| 21 | PJ109 | 100 | 27 |
| 22 | PJ113 | 100 | 2 |
| 23 | PJ114 | 250 | 2 |
| 24 | PJ122 | 50 | 15 |
| 25 | PJ124 | 50 | 3 |
| 26 | PJ127 | 100 | 1 |
| 27 | PJ128 | 100 | 6 |

Lampiran 2

Data Saluran Penyulang Kuta

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NO** | **ID LINE** | **Koneksi Bus ID** | | **Panjang km** | **Z Ohm/km** | | **Total Ohm** | |
| **Dari** | **Ke** | **R** | **X** | **R** | **X** |
| 1 | LINE1 | Bus 1 | Bus 2 | 0,4 | 28,13 | 5,39 | 28,64 | 0,01 |
| 2 | LINE 2 | Bus 2 | Bus 3 | 0,7 | 7,31 | 1,40 | 7,44 | 0,24 |
| 3 | LINE 3 | Bus 3 | Bus 4 | 0,45 | 12,78 | 2,45 | 13,02 | 0,37 |
| 4 | LINE 4 | Bus 4 | Bus 5 | 0,5 | 8,22 | 1,57 | 8,37 | 0,20 |
| 5 | LINE 5 | Bus 5 | Bus 6 | 1 | 2,65 | 0,53 | 2,71 | 0,27 |
| 6 | LINE 6 | Bus 6 | Bus 7 | 2,05 | 35,71 | 7,17 | 36,42 | 0,51 |
| 7 | LINE 7 | Bus 7 | Bus 8 | 1,24 | 21,60 | 4,34 | 22,03 | 0,24 |
| 8 | LINE 8 | Bus 8 | Bus 9 | 0,98 | 17,90 | 3,43 | 18,22 | 0,02 |
| 9 | LINE 9 | Bus 9 | Bus 10 | 1,6 | 29,22 | 5,60 | 29,75 | 0,17 |
| 10 | LINE 10 | Bus 10 | Bus 11 | 1,74 | 95,33 | 18,27 | 97,07 | 0,26 |
| 11 | LINE 11 | Bus 11 | Bus 12 | 1,54 | 28,13 | 5,39 | 28,64 | 0,91 |
| 12 | LINE 12 | Bus 12 | Bus 13 | 1,65 | 28,74 | 5,77 | 29,32 | 0,04 |
| 13 | LINE13 | Bus 13 | Bus 14 | 0,985 | 53,97 | 10,34 | 54,95 | 0,03 |
| 14 | LINE 14 | Bus 14 | Bus 15 | 2,00 | 36,53 | 7,00 | 37,19 | 0,38 |
| 15 | LINE 15 | Bus 15 | Bus 16 | 1,40 | 25,57 | 4,90 | 26,03 | 0,38 |
| 16 | LINE 16 | Bus 16 | Bus 17 | 0,75 | 13,06 | 2,62 | 13,33 | 0,40 |
| 17 | LINE 17 | Bus 17 | Bus 18 | 1,15 | 21,00 | 4,02 | 21,38 | 0,51 |
| 18 | LINE 18 | Bus 18 | Bus 19 | 1,3 | 6,90 | 1,39 | 7,04 | 0,01 |
| 19 | LINE 19 | Bus 19 | Bus 20 | 1,55 | 28,31 | 5,42 | 28,82 | 0,35 |
| 20 | LINE 20 | Bus 20 | Bus 21 | 1,54 |  |  | 28,64 | 0,01 |
| 21 | LINE 21 | Bus 21 | Bus 22 | 1,54 | 28,13 | 5,39 | 40,91 | 0,56 |
| 22 | LINE 22 | Bus 22 | Bus 23 | 2,2 | 40,18 | 7,70 | 17,41 | 0,66 |
| 23 | LINE 23 | Bus 23 | Bus 24 | 0,98 | 17,07 | 3,43 | 30,12 | 0,01 |
| 24 | LINE 24 | Bus 24 | Bus 25 | 1,62 | 29,59 | 5,67 | 34,65 | 0,34 |
| 25 | LINE 25 | Bus 25 | Bus 26 | 1,95 | 33,97 | 6,82 | 35,53 | 0,51 |
| 26 | LINE 26 | Bus 26 | Bus 27 | 2 | 34,84 | 7,00 | 31,98 | 0,01 |
| 27 | LINE 27 | Bus 27 | Bus 28 | 1,8 | 31,35 | 6,30 | 36,26 | 0,02 |
| 28 | LINE 28 | Bus 28 | Bus 29 | 1,95 | 35,61 | 6,82 | 31,36 | 0,31 |
| 29 | LINE 29 | Bus 29 | Bus 30 | 1,765 | 30,74 | 6,18 | 23,24 | 0,24 |
| 30 | LINE 30 | Bus 30 | Bus 31 | 1,25 | 22,83 | 4,37 | 39,53 | 0,11 |
| 31 | LINE 31 | Bus 31 | Bus 32 | 2,225 | 38,76 | 7,79 | 11,10 | 0,21 |
| 32 | LINE 32 | Bus 32 | Bus 33 | 2,05 | 10,88 | 2,19 | 34,30 | 0,64 |
| 33 | LINE 33 | Bus 33 | Bus 34 | 1,85 | 33,79 | 6,47 | 31,36 | 0,04 |
| 34 | LINE 34 | Bus 34 | Bus 35 | 1,765 | 30,74 | 6,18 | 37,31 | 0,28 |
| 35 | LINE 35 | Bus 35 | Bus 36 | 2,1 | 36,58 | 7,35 | 36,42 | 0,34 |
| 36 | LINE 36 | Bus36 | Bus 37 | 2,05 | 35,71 | 7,17 | 27,36 | 0,02 |
| 37 | LINE 37 | Bus 37 | Bus 38 | 1,54 | 26,83 | 5,39 | 22,21 | 0,02 |
| 38 | LINE 38 | Bus 38 | Bus 39 | 1,25 | 21,77 | 4,37 | 40,91 | 0,51 |
| 39 | LINE 39 | Bus 39 | Bus 40 | 2,2 | 40,18 | 7,70 | 33,47 | 0,24 |
| 40 | LINE 40 | Bus 40 | Bus 41 | 1,8 | 32,87 | 6,30 | 25,76 | 0,01 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 41 | LINE 41 | Bus 41 | Bus 42 | 1,45 | 25,26 | 5,07 | 28,43 | 0,51 |
| 42 | LINE 42 | Bus 42 | Bus 43 | 1,6 | 27,87 | 5,60 | 29,75 | 0,82 |
| 43 | LINE 43 | Bus 43 | Bus 44 | 1,65 | 29,22 | 5,60 | 39,98 | 0,27 |
| 44 | LINE 44 | Bus 44 | Bus 45 | 2,15 | 39,27 | 7,52 | 31,61 | 0,12 |
| 45 | LINE 45 | Bus 45 | Bus 46 | 1,7 | 31,05 | 5,95 | 21,38 | 0,77 |
| 46 | LINE 46 | Bus 46 | Bus 47 | 1,15 | 21 | 4,02 | 30,12 | 0,080 |
| 47 | LINE 47 | Bus 47 | Bus 48 | 1,62 | 29,59 | 5,67 | 31,09 | 0,21 |
| 48 | LINE 48 | Bus 48 | Bus 49 | 1,75 | 30,48 | 6,12 | 39,05 | 0,10 |
| 49 | LINE 49 | Bus 49 | Bus 50 | 2,1 | 38,35 | 7,35 | 35,24 | 0,91 |
| 50 | LINE 50 | Bus 50 | Bus 51 | 1,895 | 34,61 | 6,63 | 28,08 | 0,51 |
| 51 | LINE 51 | Bus 51 | Bus 52 | 1,51 | 27,58 | 5,28 | 6,50 | 0,12 |
| 52 | LINE 52 | Bus 52 | Bus 53 | 1,2 | 6,37 | 1,28 | 30,68 | 1,10 |
| 53 | LINE 53 | Bus 53 | Bus 54 | 1,65 | 30,13 | 5,77 | 8,94 | 1,30 |
| 54 | LINE 54 | Bus 54 | Bus 55 | 1,65 | 8,76 | 1,76 | 17,50 | 0,10 |
| 55 | LINE 55 | Bus 55 | Bus 56 | 0,985 | 17,16 | 3,45 | 30,68 | 0,37 |
| 56 | LINE 56 | Bus 56 | Bus 57 | 1,65 | 30,13 | 5,77 | 8,94 | 0,71 |
| 57 | LINE 57 | Bus 57 | Bus 58 | 1,5 | 27,40 | 5,25 | 27,89 | 0,34 |
| 58 | LINE 58 | Bus 58 | Bus 59 | 1,55 | 28,31 | 5,42 | 28,82 | 1,12 |
| 59 | LINE 59 | Bus 59 | Bus 60 | 1,68 | 8,92 | 1,79 | 9,10 | 1,25 |
| 60 | LINE 60 | Bus 60 | Bus 61 | 2,065 | 24,60 | 3,49 | 29,60 | 0,89 |
| 61 | LINE 61 | Bus 61 | Bus 62 | 1,68 | 29,26 | 5,88 | 22,85 | 1,30 |
| 62 | LINE 62 | Bus 62 | Bus 62 | 1,205 | 16,45 | 1,84 | 6,95 | 0,71 |

Data Saluran Penyulang Teluk Awang

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NO** | **ID LINE** | **Koneksi Bus ID** | | **Panjang km** | **Z Ohm/km** | | **Total Ohm** | |
| **Dari** | **Ke** | **R** | **X** | **R** | **X** |
| 1 | LINE1 | Bus 1 | Bus 2 | 0,4 | 1,06 | 0,02 | 1,06 | 0,16 |
| 2 | LINE 2 | Bus 2 | Bus 3 | 0,7 | 6,06 | 0,12 | 6,06 | 0,22 |
| 3 | LINE 3 | Bus 3 | Bus 4 | 0,45 | 3,90 | 0,08 | 3,90 | 0,077 |
| 4 | LINE 4 | Bus 4 | Bus 5 | 0,5 | 4,33 | 0,09 | 4,33 | 0,10 |
| 5 | LINE 5 | Bus 5 | Bus 6 | 0,855 | 7,40 | 0,15 | 7,40 | 0,26 |
| 6 | LINE 6 | Bus 6 | Bus 7 | 1,65 | 14,29 | 0,28 | 14,29 | 0,55 |
| 7 | LINE 7 | Bus 7 | Bus 8 | 1,3 | 3,43 | 0,07 | 3,43 | 0,061 |
| 8 | LINE 8 | Bus 8 | Bus 9 | 1,55 | 13,42 | 0,27 | 13,42 | 0,18 |
| 9 | LINE 9 | Bus 9 | Bus 10 | 1 | 8,66 | 0,17 | 8,66 | 0,13 |
| 10 | LINE 10 | Bus 10 | Bus 11 | 1,064 | 9,21 | 0,18 | 9,21 | 0,17 |
| 11 | LINE 11 | Bus 11 | Bus 12 | 1,86 | 16,11 | 0,32 | 16,11 | 0,17 |
| 12 | LINE 12 | Bus 12 | Bus 13 | 0,98 | 8,49 | 0,17 | 8,49 | 0,06 |
| 13 | LINE13 | Bus 13 | Bus 14 | 1,62 | 14,03 | 0,28 | 14,03 | 0,09 |
| 14 | LINE 14 | Bus 14 | Bus 15 | 1,2 | 10,39 | 0,21 | 10,39 | 0,23 |
| 15 | LINE 15 | Bus 15 | Bus 16 | 1 | 2,64 | 0,05 | 2,64 | 0,01 |
| 16 | LINE 16 | Bus 16 | Bus 17 | 0,985 | 8,53 | 0,17 | 8,53 | 0,15 |
| 17 | LINE 17 | Bus 17 | Bus 18 | 1,65 | 14,29 | 0,28 | 14,29 | 0,13 |
| 18 | LINE 18 | Bus 18 | Bus 19 | 1,5 | 12,99 | 0,26 | 12,99 | 0,42 |
| 19 | LINE 19 | Bus 19 | Bus 20 | 1,55 | 13,42 | 0,27 | 13,42 | 0,15 |
| 20 | LINE 20 | Bus 20 | Bus 21 | 1,68 | 14,55 | 0,29 | 14,55 | 0,06 |
| 21 | LINE 21 | Bus 21 | Bus 22 | 1,985 | 10,43 | 0,34 | 10,43 | 0,12 |
| 22 | LINE 22 | Bus 22 | Bus 23 | 1,68 | 10,56 | 0,29 | 10,56 | 0,05 |
| 23 | LINE 23 | Bus 23 | Bus 24 | 1,205 | 9,87 | 0,21 | 9,87 | 0,23 |
| 24 | LINE 24 | Bus 24 | Bus 25 | 1,22 | 15,59 | 0,21 | 15,59 | 0,15 |
| 25 | LINE 25 | Bus 25 | Bus 26 | 1,14 | 16,89 | 0,20 | 16,89 | 0,02 |
| 26 | LINE 26 | Bus 26 | Bus 27 | 1,8 | 4,66 | 0,31 | 4,66 | 0,14 |
| 27 | LINE 27 | Bus 27 | Bus 28 | 1,95 | 10,43 | 0,33 | 10,43 | 0,10 |
| 28 | LINE 28 | Bus 28 | Bus 29 | 1,765 | 10,56 | 0,09 | 10,56 | 0,362 |
| 29 | LINE 29 | Bus 29 | Bus 30 | 1,25 | 9,87 | 0,21 | 9,87 | 0,24 |
| 30 | LINE 30 | Bus 30 | Bus 31 | 0,976 | 15,59 | 0,17 | 15,59 | 0,15 |
| 31 | LINE 31 | Bus 31 | Bus 32 | 1,1 | 16,89 | 0,19 | 16,89 | 0,21 |
| 32 | LINE 32 | Bus 32 | Bus 33 | 1,15 | 4,66 | 0,20 | 4,66 | 0,12 |
| 33 | LINE 33 | Bus 33 | Bus 34 | 1,62 | 10,43 | 0,28 | 10,43 | 0,09 |
| 34 | LINE 34 | Bus 34 | Bus 35 | 1,75 | 8,45 | 0,20 | 8,45 | 0,13 |
| 35 | LINE 35 | Bus 35 | Bus 36 | 2,1 | 9,53 | 0,36 | 9,53 | 0,37 |
| 36 | LINE 36 | Bus36 | Bus 37 | 1,245 | 9,96 | 0,21 | 9,96 | 0,21 |
| 37 | LINE 37 | Bus 37 | Bus 38 | 1,51 | 14,03 | 0,26 | 14,03 | 0,05 |
| 38 | LINE 38 | Bus 38 | Bus 39 | 1,2 | 15,15 | 0,21 | 15,15 | 0,10 |
| 39 | LINE 39 | Bus 39 | Bus 40 | 1,65 | 18,18 | 0,28 | 18,18 | 0,09 |
| 40 | LINE 40 | Bus 40 | Bus 41 | 2,015 | 10,78 | 0,11 | 10,78 | 0,09 |
| 41 | LINE 41 | Bus 41 | Bus 42 | 0,85 | 13,08 | 0,15 | 13,08 | 0,07 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 42 | LINE 42 | Bus 42 | Bus 43 | 2,05 | 10,39 | 0,35 | 10,39 | 0,23 |
| 43 | LINE 43 | Bus 43 | Bus 44 | 1,54 | 14,29 | 0,26 | 14,29 | 0,09 |
| 44 | LINE 44 | Bus 44 | Bus 45 | 1,25 | 5,32 | 0,21 | 5,32 | 0,14 |
| 45 | LINE 45 | Bus 45 | Bus 46 | 2,2 | 7,36 | 0,38 | 7,36 | 0,35 |
| 46 | LINE 46 | Bus 46 | Bus 47 | 1,8 | 17,75 | 0,31 | 17,75 | 0,06 |
| 47 | LINE 47 | Bus 47 | Bus 48 | 1,45 | 13,34 | 0,25 | 13,34 | 0,29 |
| 48 | LINE 48 | Bus 48 | Bus 49 | 1,4 | 10,83 | 0,13 | 10,83 | 0,01 |
| 49 | LINE 49 | Bus 49 | Bus 50 | 0,75 | 19,05 | 0,20 | 19,05 | 0,44 |
| 50 | LINE 50 | Bus 50 | Bus 51 | 1,15 | 15,59 | 0,22 | 15,59 | 0,34 |
| 51 | LINE 51 | Bus 51 | Bus 52 | 1,3 | 12,56 | 0,27 | 12,56 | 0,03 |
| 52 | LINE 52 | Bus 52 | Bus 53 | 1,55 | 6,50 | 0,26 | 6,50 | 0,045 |
| 53 | LINE 53 | Bus 53 | Bus 54 | 1,54 | 9,96 | 0,18 | 9,96 | 0,46 |
| 54 | LINE 54 | Bus 54 | Bus 55 | 1,05 | 11,26 | 0,38 | 11,26 | 0,05 |
| 55 | LINE 55 | Bus 55 | Bus 56 | 2,2 | 13,42 | 0,17 | 13,42 | 0,02 |
| 56 | LINE 56 | Bus 56 | Bus 57 | 0,98 | 13,34 | 0,28 | 13,34 | 0,42 |
| 57 | LINE 57 | Bus 57 | Bus 58 | 1,62 | 9,09 | 0,33 | 9,09 | 0,40 |
| 58 | LINE 58 | Bus 58 | Bus 59 | 1,95 | 19,05 | 0,31 | 19,05 | 0,30 |
| 59 | LINE 59 | Bus 59 | Bus 60 | 1,8 | 8,49 | 0,25 | 8,49 | 0,44 |
| 60 | LINE 60 | Bus 60 | Bus 61 | 1,45 | 14,03 | 0,27 | 14,03 | 0,42 |
| 61 | LINE 61 | Bus 61 | Bus 62 | 1,6 | 16,89 | 0,28 | 16,89 | 0,16 |
| 62 | LINE 62 | Bus 62 | Bus 62 | 1,65 | 15,59 | 0,34 | 15,59 | 0,16 |
| 63 | LINE 63 | Bus 63 | Bus 64 | 1,965 | 12,56 | 0,29 | 12,56 | 0,015 |
| 64 | LINE 64 | Bus 64 | Bus 65 | 1,7 | 13,86 | 0,20 | 13,86 | 0,28 |
| 65 | LINE 65 | Bus 65 | Bus 66 | 1,15 | 14,29 | 0,28 | 14,29 | 0,12 |
| 66 | LINE 66 | Bus 66 | Bus 67 | 1,62 | 17,02 | 0,30 | 17,02 | 0,14 |
| 67 | LINE 67 | Bus 67 | Bus 68 | 1,75 | 14,72 | 0,08 | 14,72 | 0,62 |
| 68 | LINE 68 | Bus 68 | Bus 69 | 0,45 | 9,96 | 0,09 | 9,96 | 0,40 |
| 69 | LINE 69 | Bus 69 | Bus 70 | 0,5 | 14,03 | 0,17 | 14,03 | 0,26 |
| 70 | LINE 70 | Bus 70 | Bus 71 | 1 | 15,16 | 0,20 | 15,16 | 0,039 |
| 71 | LINE 71 | Bus 71 | Bus 72 | 1,15 | 3,90 | 0,17 | 3,90 | 0,44 |
| 72 | LINE 72 | Bus 72 | Bus 73 | 1 | 4,33 | 0,21 | 4,33 | 0,18 |
| 73 | LINE 73 | Bus 73 | Bus 74 | 1,2 | 8,66 | 0,18 | 8,66 | 0,21 |
| 74 | LINE 74 | Bus 74 | Bus 75 | 1,05 | 9,96 | 0,22 | 9,96 | 0,39 |
| 75 | LINE 75 | Bus 75 | Bus 76 | 1,025 | 8,66 | 0,27 | 8,66 | 0,38 |
| 76 | LINE 76 | Bus 76 | Bus 77 | 1,65 | 10,39 | 0,26 | 10,39 | 0,17 |
| 77 | LINE 77 | Bus 77 | Bus 78 | 0,985 | 9,09 | 0,18 | 9,09 | 0,26 |
| 78 | LINE 78 | Bus 78 | Bus 79 | 1,65 | 10,39 | 0,35 | 10,39 | 0,26 |
| 79 | LINE 79 | Bus 79 | Bus 80 | 1,5 | 14,29 | 0,26 | 14,29 | 0,23 |
| 80 | LINE 80 | Bus 80 | Bus 81 | 0,92 | 5,32 | 0,21 | 5,32 | 0,35 |
| 81 | LINE 81 | Bus 81 | Bus 82 | 1,2 | 8,53 | 0,38 | 8,53 | 0,08 |
| 82 | LINE 82 | Bus 82 | Bus 82 | 1,5 | 14,29 | 0,20 | 14,29 | 0,17 |

Data Saluran Penyulang Novotel

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NO** | **ID LINE** | **Koneksi Bus ID** | | **Panjang km** | **Z Ohm/km** | | **Total Ohm** | |
| **Dari** | **Ke** | **R** | **X** | **R** | **X** |
| 1 | LINE1 | Bus 1 | Bus 2 | 0,855 | 2,26 | 0,04 | 2,26 | 0,034 |
| 2 | LINE 2 | Bus 2 | Bus 3 | 1,65 | 14,29 | 0,28 | 14,29 | 0,62 |
| 3 | LINE 3 | Bus 3 | Bus 4 | 2,45 | 21,21 | 0,42 | 21,22 | 0,50 |
| 4 | LINE 4 | Bus 4 | Bus 5 | 2,365 | 20,48 | 0,41 | 20,48 | 0,69 |
| 5 | LINE 5 | Bus 5 | Bus 6 | 2,62 | 22,69 | 0,45 | 22,69 | 0,34 |
| 6 | LINE 6 | Bus 6 | Bus 7 | 2,362 | 6,23 | 0,12 | 6,24 | 0,88 |
| 7 | LINE 7 | Bus 7 | Bus 8 | 2,988 | 25,87 | 0,51 | 25,88 | 0,065 |
| 8 | LINE 8 | Bus 8 | Bus 9 | 2,97 | 25,72 | 0,51 | 25,72 | 0,58 |
| 9 | LINE 9 | Bus 9 | Bus 10 | 2,94 | 29,22 | 0,48 | 24,66 | 0,36 |