EE 202 Lab Report 3

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| --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 |
|  | Theoretical | Measured | INL | DNL |
| 0000 | 0 | 0 | 0 |  |
| 0001 | 0.25 | 0.252 | -0.002 | 0.252 |
| 0010 | 0.5 | 0.497 | 0.003 | 0.245 |
| 0011 | 0.75 | 0.748 | 0.002 | 0.251 |
| 0100 | 1 | 0.999 | 0.001 | 0.251 |
| 0101 | 1.25 | 1.251 | -0.001 | 0.252 |
| 0110 | 1.5 | 1.496 | 0.004 | 0.245 |
| 0111 | 1.75 | 1.748 | 0.002 | 0.252 |
| 1000 | 2 | 1.996 | 0.004 | 0.248 |
| 1001 | 2.25 | 2.247 | 0.003 | 0.251 |
| 1010 | 2.5 | 2.492 | 0.008 | 0.245 |
| 1011 | 2.75 | 2.744 | 0.006 | 0.252 |
| 1100 | 3 | 2.995 | 0.005 | 0.251 |
| 1101 | 3.25 | 3.246 | 0.004 | 0.251 |
| 1110 | 3.5 | 3.492 | 0.008 | 0.246 |
| 1111 | 3.75 | 3.744 | 0.006 | 0.252 |

Circuit features such as inexact resistors can result in INL and DNL errors. Resistors are manufactured within a certain degree of error. Generally, they are usable provided they are within 5-10% of the desired value. As a result, the theoretical resistance will differ from the actual to a small degree. As seen from this table, that variation is relatively small.