# Why does the equation for Magnetizing Inductance use (1-DTYP) rather than (D)

The equation is $L\_{MAG}\geq \frac{V\_{IN}\* \left(1- D\_{TYP}\right)}{\frac{∆I\_{LOUT\* 0.5}}{a1}\*2\* F\_{SW}}$

The input current to the power stage has two major components. One is the output inductor current, reflected through the transformer turns ratio and the other is the transformer magnetizing current. The magnetizing current therefore acts as a slope compensation ramp because it adds to the current sense signal. This equation was generated to insure that the ramp due to the magnetizing current was not more than half the downslope of the output inductor current. The inductor current downslope happens during the Toff interval which is $T\_{OFF}= \frac{\left(1-D\_{TYP}\right) }{2\*F\_{SW}}$ . The output inductor sees a frequency of 2\*FSW. DTYP was chosen because it was central between DMIN and DMAX. It may be necessary to add a further slope compensation ramp using the RSUM resistor as explained in paragraph 7.3.11 of the datasheet SLUSA16D.