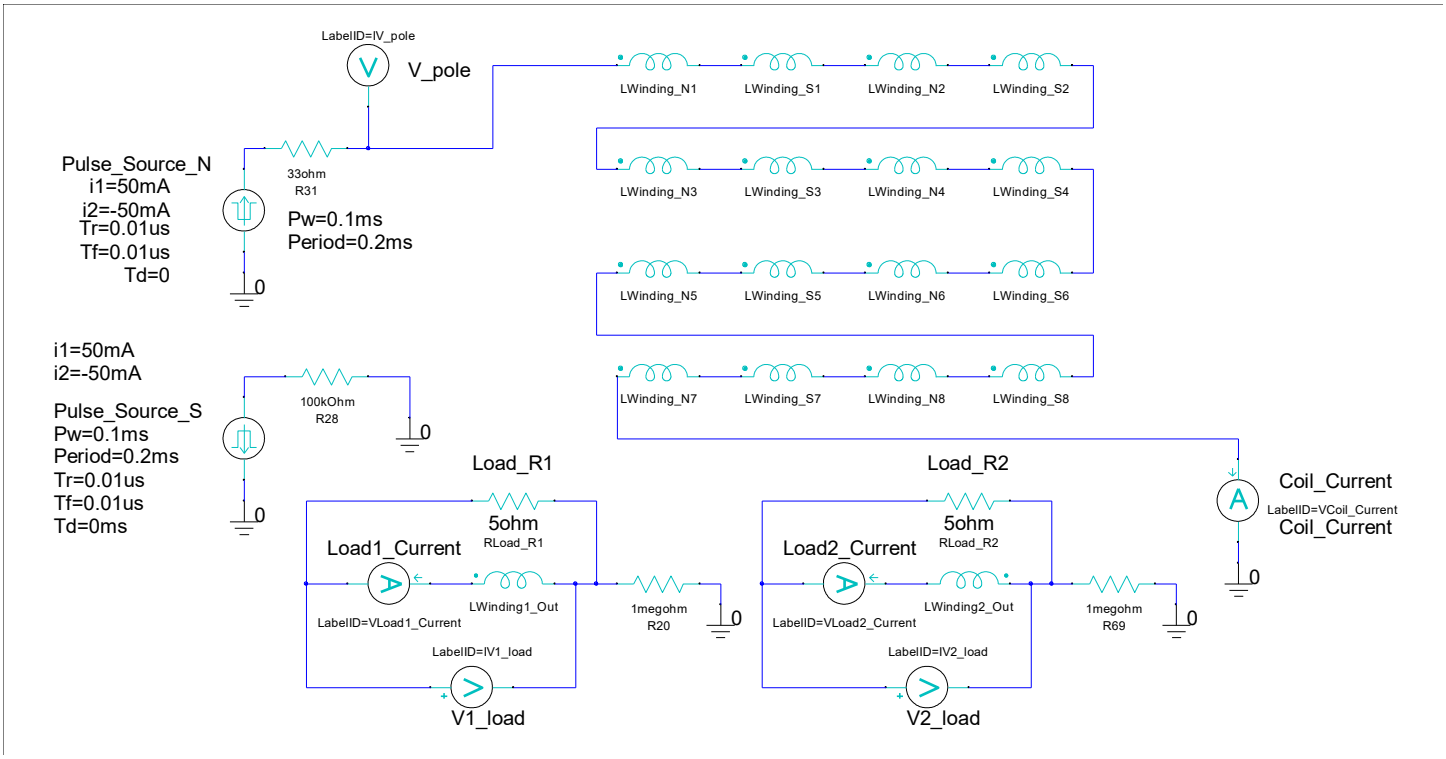
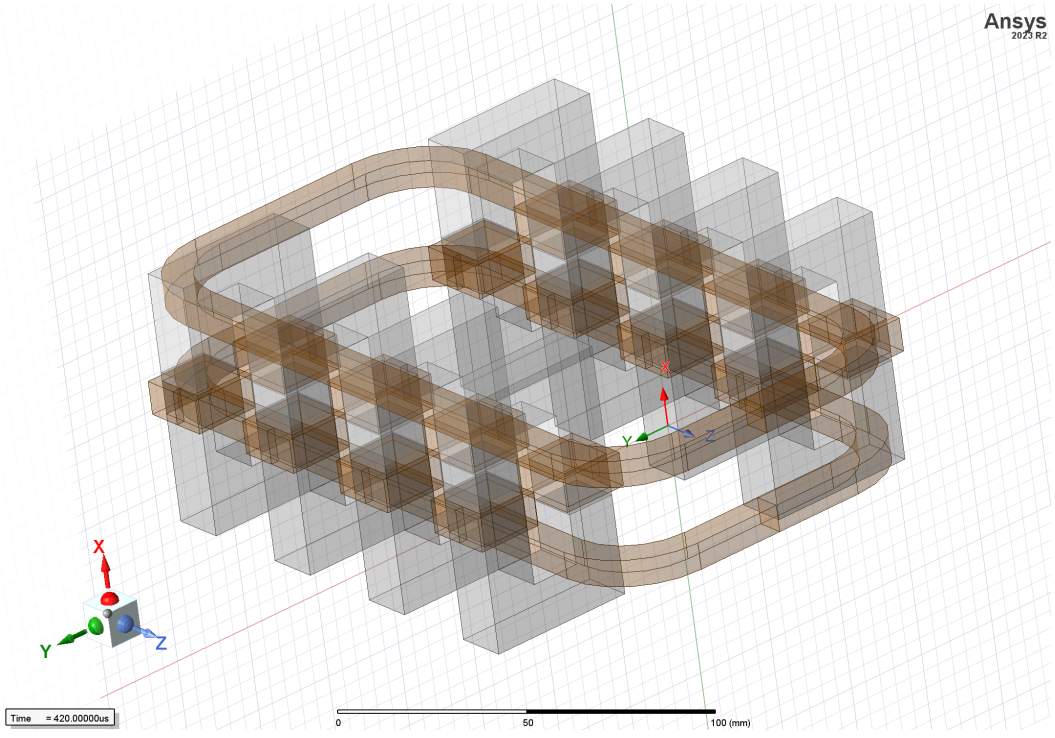
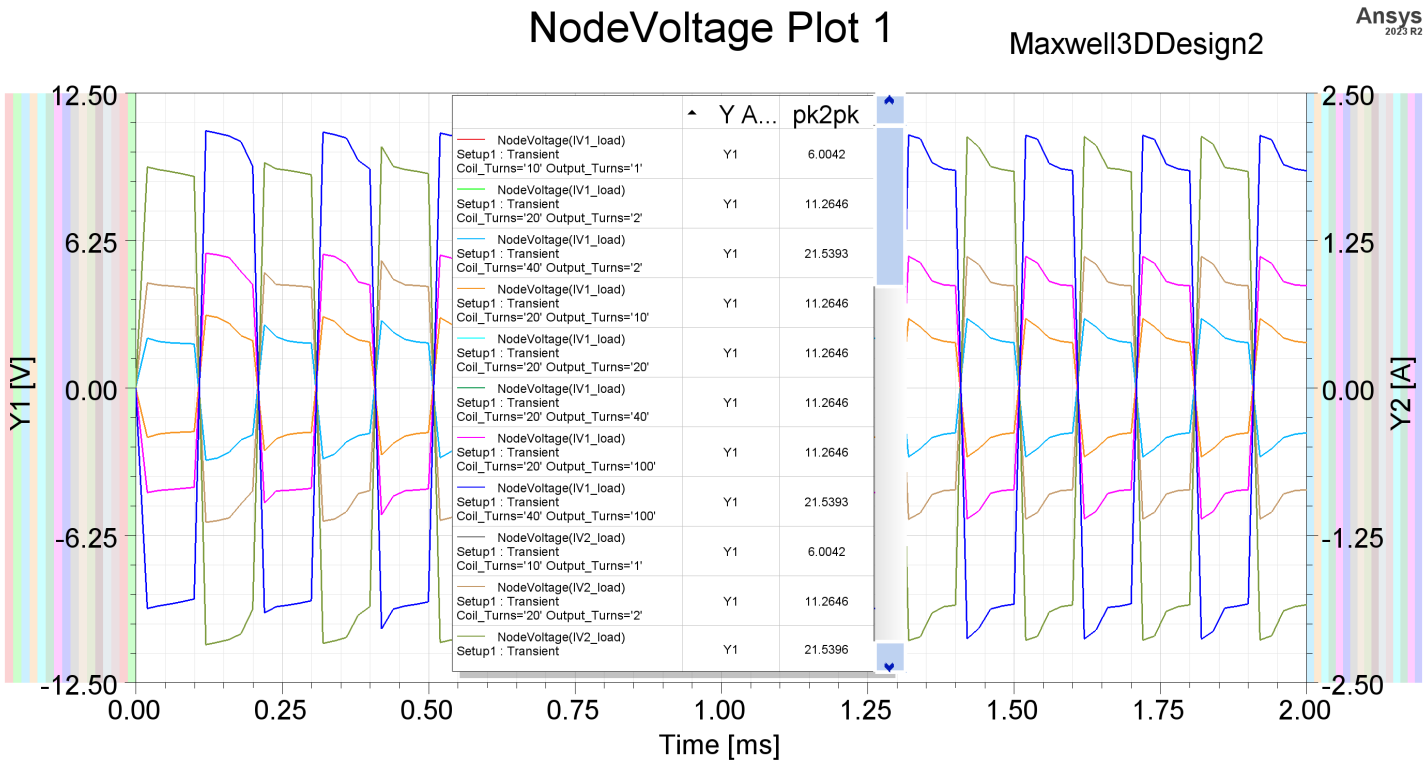
TFG_Z05

Setup a new simulation (Z04 to Z05) *NOTE: it appears some of the old Z04 results are included.*

Initial: 20 Coil turns, 20 Loop turns.
Stop time: 2mS, Step 0.02mS







Coil turns=40, Output turns=100 driven by 3V at 100mA Yields:
Vout(1&2)=21.5396 V_{pp}, Iout(1&2)=4.3079A_{pp} Pout=92.79W (1&2 each)

Pout (1&2 total) = 185.58W

Note: the initial goals are 36VDC at 4Ah [144Wh]. We've exceeded the initial goal!
This is without optimization (WAG). Now lets shoot for 36VDC at 6Ah [216Wh]...

Increase Vout to 40V and current to 6A... The size is still well within the footprint.

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Increased *(the only changes)*: **Coil turns = 50 and Loop turns = 120**

Vout(1&2) = 26.6969 V_{pp} & 26.6973 V_{pp} and Iout (1 & 2) = I_{pp} = 5.3394 I_{pp} & 5.3395 I_{pp}
P1out = 142.5W P2out= 142.6W
Pout (1&2 total) = 285.15W

Note: Voltage is still below 36VDC but the Power exceeds the second goal by 69W... !!!

If this is true - and I have no reason to doubt it - then these results are INCREDABLE!

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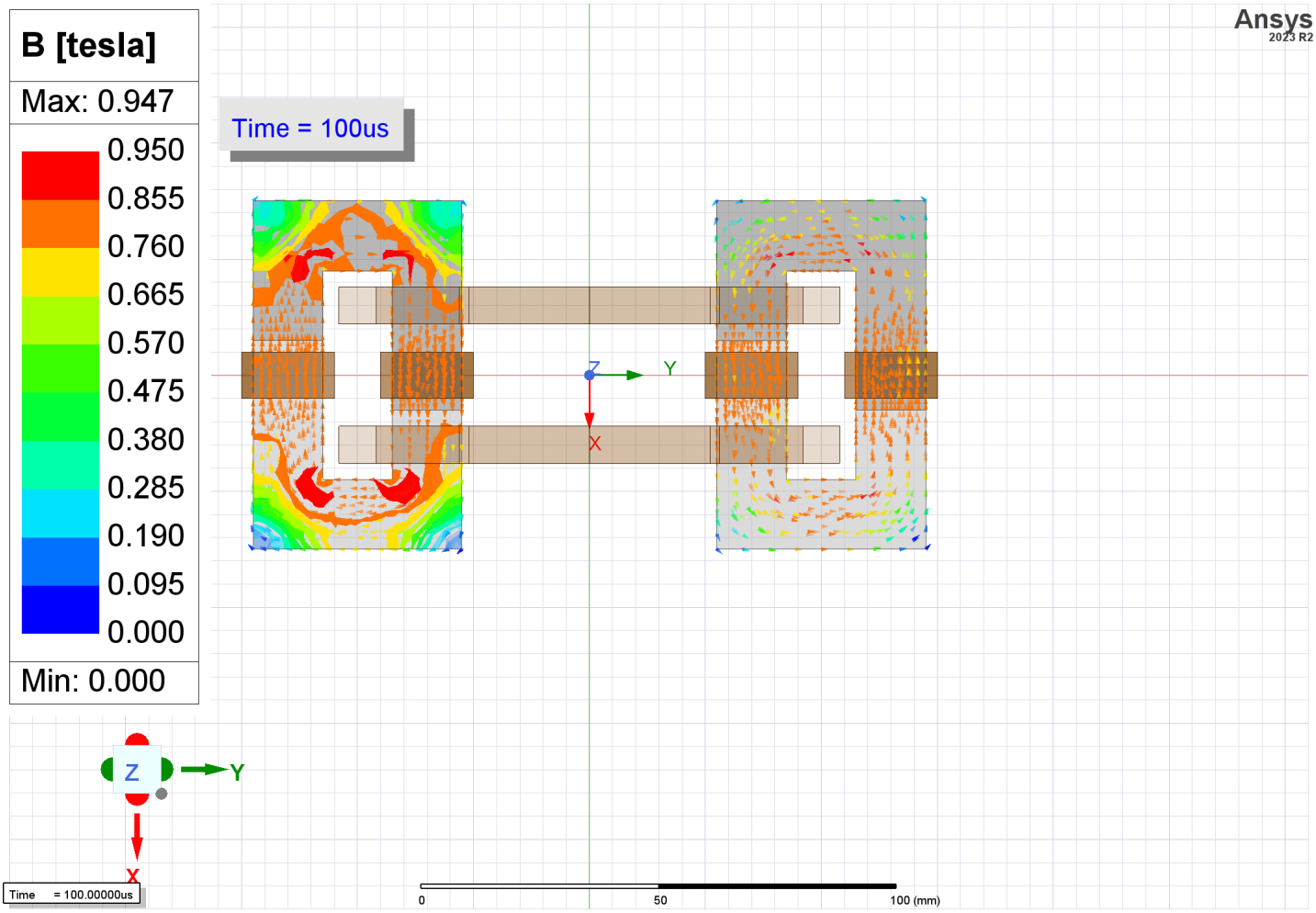
Increased (the only changes): {1} Coil turns = 50 and Loop turns = 150;
Increased (the only changes): {2} Coil turns = 60 and Loop turns = 130.

{1} V1out = 26.69 Vpp I1out = 5.34 Ipp Pout = 142.52 W
V2out = 26.69 Vpp I2out = 5.34 Ipp Pout = 142.52 W P1 + P2 = 285.04 W

{2} V1out = 31.84 Vpp I1out = 6.37 Ipp Pout = 202.82 W
V2out = 31.84 Vpp I2out = 6.37 Ipp Pout = 202.82 W P1 +P2 = 405.64 W

{2} P1 + P2 = 405.64 W *[still a bit short of 36VDC but quite good!]*

This could be where we are reaching saturation on the B-H Curve. The "B" plot might show this...



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This Complex turns [Coil & Loop] with Output (in log format) taken from some of the "test runs:"
Note the first runs - up to about 600 do not appear correct and may need to be re-run for confirmation. However, study it for a bit and you will see the trend. For example - if coil truns don't change, adding Loop turns does not seem to improve the output, but adding more coil turns and lowering the Loop turns aeems to improve the output near saturation (?).

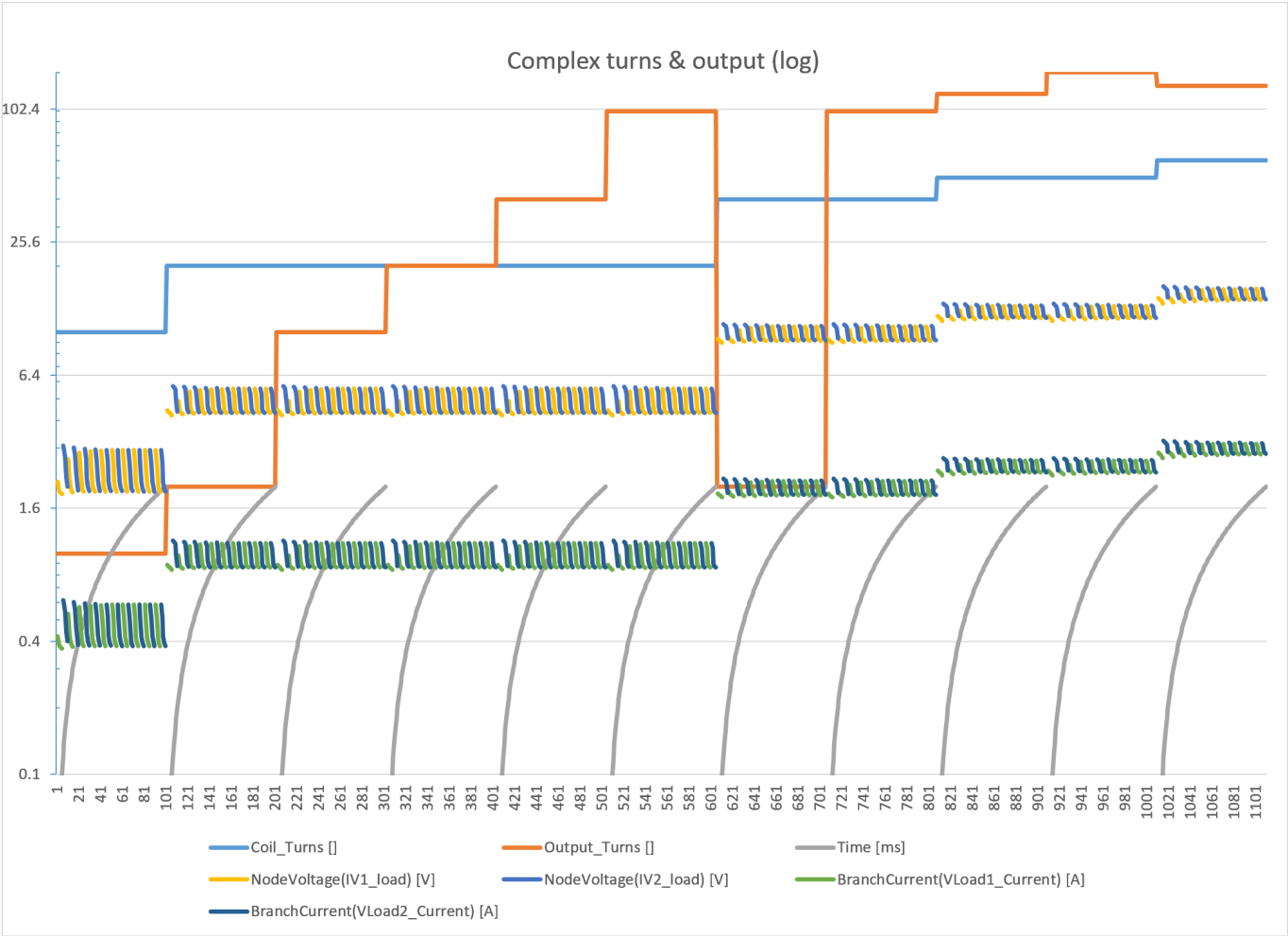

Chart data in spread sheet test is shown in a seperate pdf.

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