INSTALLATION

Create a new folder, says "OPT_da"
Unzip the uploaded file into.
This will create two subfolders: "Install" and "Samples".
Open the "Install" subfolder and execute "Startup.exe".
"Install" subfolder is no longer necessary.

PURPOSE

This program doesn't pretend to compute the better output transformer, it simply helps you to design the one
wich best fits your needs.

DISCLAIMER
(I even doubt of my incertitudes)

Great care was taken to make computation as precise as possible, however we don't live in a perfect world.
Predicting exactly how a transformer will work should (may be) possible if it could be build exactly as
specified.
Steel and copper specifications are subject to manufacturer's tolerance, winding execution and core assembly
are very prone to deviations.

Will the insulation thickness between copper layers be exactly respected ?
Will the exact gap height respected ?
Will the expected quantity af steel be inserted in the bobbin ?
What kind of hardware wil be used in final assembly ?
Is bell (or chassis) material magnetic ? Does it short out the gap ?
Are you sure the sound that reach your ears throught your loudspeakers is not affected by athmospheric presure
nor air moisture ?
So long !

Consider results from this program for what there are, a reasonnable starting point and don't worry too much about

subdecimals.

APOLOGIZE

Sorry, my brain is unable to think in sqare mils, wire gauge nor cubic inches.

STARTING

Launch programm as usual by double clicking on its icon or, from the file manager, by double clicking on "OPT_da.exe"

The worksheet shows five frames:
The Green one is where you enter main specifications.
The Orange one give results about winding and it's where you may alter wire size and turns.
The Grey one give infos about core, and allow to select another one.
The Blue one is where you enter datas about insulation.
The Brown one gives some useful additional infos about real load.
The White one may receive free text.

If it is the first launch, default specs (in the green window) are as follow:
10W
20 hz lowest frequency
700 Ohms tube's Rp
Single Ended configuration checked
3800 Ohms primary in two sections
A DC plate current of 60 mA
6 Ohms secondary with 3 paralelled wires
a 0.2 mm gap (for SE operation)

From this specs, a solution is suggested, core datas being taken from a small database (more on this latter)

And now, you play !
Of course, you can change all default specs, but you can also alter:

Standard Wire gauge
Click in the 'Diameter' text box, replace by a new value and 'Enter'
Recalculations are immediate.
Look at the upper right of the orange frame if the winding still fits in the 'copper window'

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* BE CONSERVATIVE: The real quantity of copper that fits depends heavily of winding quality. *
* Do some tests before real work, nothing more frustrating than an over filled bobbin !! *
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The value for 'Insulation Thickness Max allowed' takes care of the number of sandwich slices wich is the

consequence of the number of sections in each winding.
It indicates how thick insulation can be between each slice, use a lower "Actual" value.
Losses in copper (at specified power) are shown at the bottom center of the orange frame.
The 'AC Only' value ignore the DC component.
Increasing wire size reduces losses but quickly overfill the copper window.

Primary Inductance
Is shown in Henrys above the scroll bar at the upper center of the orange frame.
Use scroll bar to change it as needed, recalulations are immediate.

Core size
When no other compromise is possible to fit all necessary copper, you may choose
a larger core by double clicking on the desired core name in the list.
Core name now appears in red, click on it to return at the suggested.
You may choose to accept an higher lo frequency cut off (EG. 80 Hz for a guitar amp) that will
allow for a smaller core.
Another compromise is to permit higher induction, resulting in risk of saturation at lower
frequency.
The induction value is given for the rated power at lowest frequency, condition
that seldom occurs in real world. It's up to you !

You may iterate as long as you are not satified.
Beep warns you if something goes too wrong.
Design may be saved at any time with same or different name.
More than one worksheet can be launched at a time to easily compare solutions.
When you launch a new worksheet, it spawns with the more recently saved values.

You may want to see what happen at different frequencies or power level for the actual winding.
To do that, click on "Turns per Volts" text to lock the actual winding so it will not be recalculated.
Click again to return to normal processing.

CORE DATABASE

Core datas are stored in a small ACCESS(TM) database.
Existing samples may be updated or deleted as well as new core may be created.
Use the "Edit HighLighted core" button to open the edit window.
You may then alter existing datas.
To create a new entry, type a new name in place of the current one.
If it not readly exists you will be prompted to accept saving current values under
this new name.
At this time you have just created an 'alias', now alter values as needed and click on
the "Save" button.
You may also alter values first and then change name.
Note that if you enter an existing name, values for this core as displayed.