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Precise Calculation Results (8/26/2019)

The best patterns of coil design based on precise calculation are described below. Also, conductor parameters can be referred from https://www.batteryspace.jp/html/page28.html

Plan A

- Conductor: AWG 18 Copper Line with Phi=1.02mm; maximum available current=16A@40ºC
- *N=400, I=15A*
- meanB = ***45.09***mT, variation rate of z component = 7.8%
- Conductor Layer Thickness = 2.14cm
- Thermal Stability Indicator: 1500 A/cm^2

Plan B

- Conductor: AWG 20 Copper Line with Phi=0.81mm; maximum available current=11A@40ºC
- *N=400, I=10A*
- meanB = ***30.06***mT, variation rate of z component = (calculating…)
- Conductor Layer Thickness = 1.28cm
- Thermal Stability Indicator: 1690 A/cm^2

Plan C

- Conductor: AWG 20 Copper Line with Phi=0.81mm; maximum available current=11A@40ºC
- *N=500, I=10A*
- meanB = ***36.81***mT, variation rate of z component = 7.2%
- Conductor Layer Thickness = 1.60cm
- Thermal Stability Indicator: 1690 A/cm^2