

ELECTROMAGNET TEST REPORT

MODEL 5403AC

LABORATORY ELECTROMAGNET

System Components

GMW model 5403AC electromagnet, SN 02

Power Supply: 231HC, Sn:4611FD24, 150V/70A.

DC power supply SGA160/31D-0AAA SN:1237A04096, 5kw, 440V

Chiller: NesLAB ThermoFlex 2500, air cool water chiller, SN: 0110362601121207

Field probe: Senis 0YA02F-J02T0K5J, SN:059-12

Magnet pole face: 60mm

Magnet pole gap: 46mm

Magnet pole axial hole: 4.0 mm, round.

Test Notes:

Field mapping using Agilent 34970A(SN:US37035272) read the Senis probe

Mapper axis:

z-axis: horizontal along pole axis, +z=+field direction

y-axis: vertical +y upwards

x-axis: along gap.

Data included:

-Stability:

at 0A, 50A for 10 min, with pole installed.

at 50A for 30 min, with pole installed.

at 0A, 50A for 10 min, without pole installed.

-Wave form:

square wave form, 0.5Hz, at 10A, 20A, 30A, 40A, 50A, 60A, 70A, with pole installed.

square wave form, 0.5Hz, at 10A, 20A, 30A, 40A, 50A, 60A, 70A, without pole installed.

-Excitation (B vs. I) curve:

from -70A to +70A, with pole installed.

from -70A to +70A, without pole installed.

-Field mapping:

field map along the pole gap (X map), with pole installed.

field map along the pole axis (Z map), with pole installed.

field map along the pole gap (X map), without pole installed.

field map along the pole axis (Z map), without pole installed.

GMW Associates

Electromagnet Stability Plot

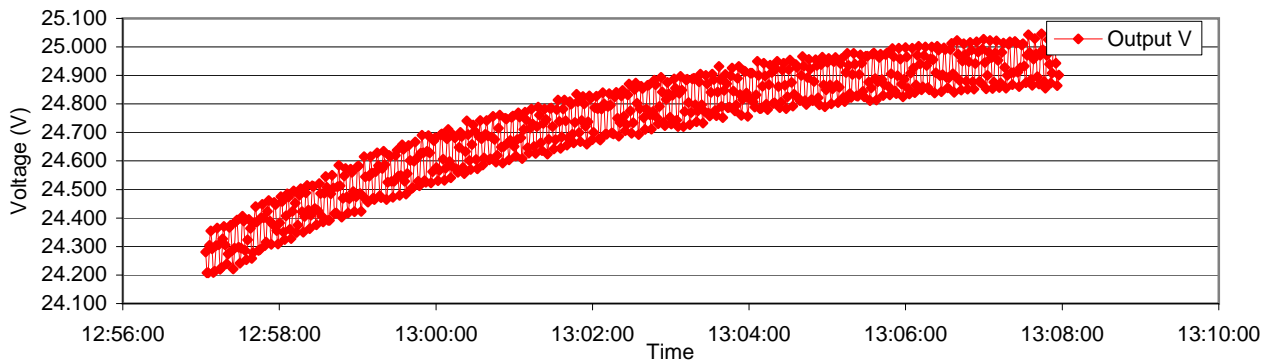
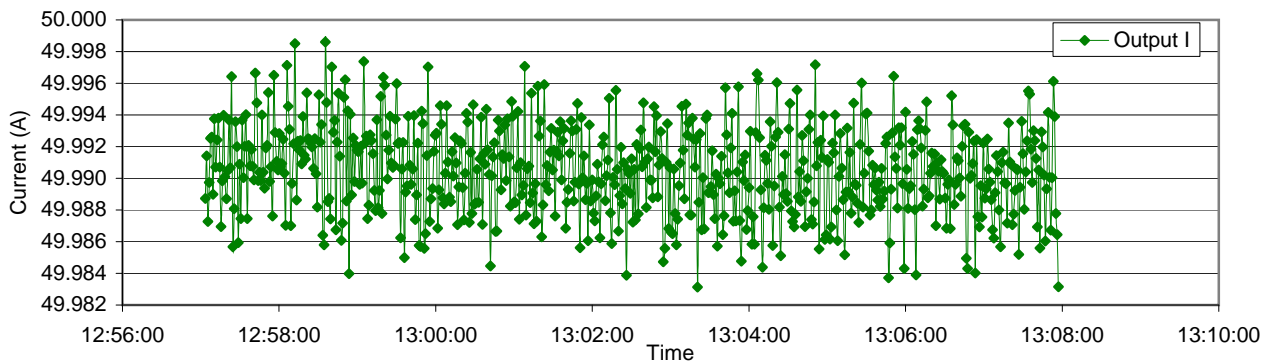
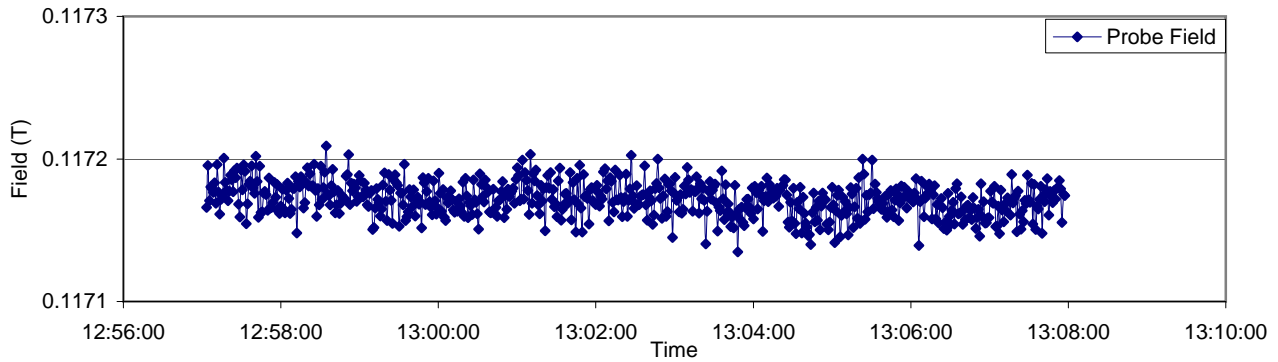
Date: Jan 4, 2013 Page: 5 of 5
Engr: Y.Qin

Model: 5403AC Power Supply: 231HC
Pole face: 60mm Pole Gap: 46mm Axial hole: 4mm
PS Serial No: 4611FD24

Field probe: Senis 0YA02F-J02T0K5J SN:059-12

Chilleer: NesLAB ThermoFlex2500 SN:0110362601121207
Chiller set to 20 deg C, flow rate 0.9/min@37psi

Note: no pole, Set I=50A



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Electromagnet Waveform Plot

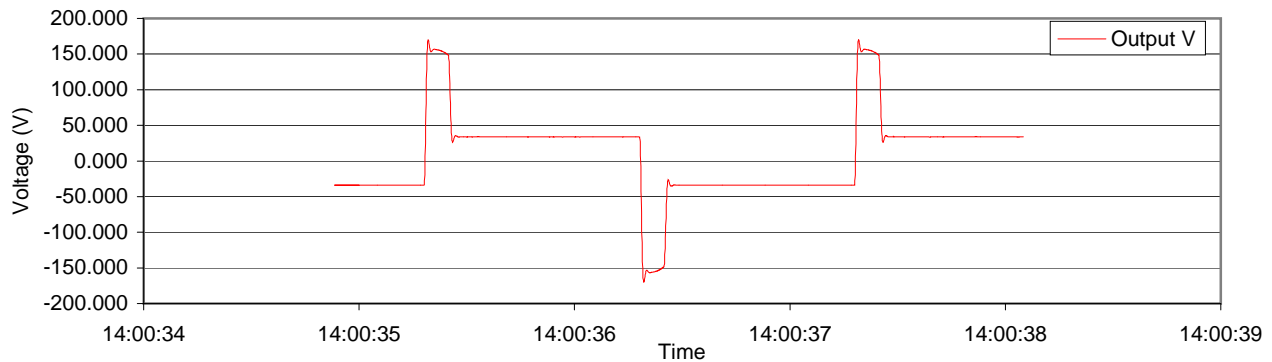
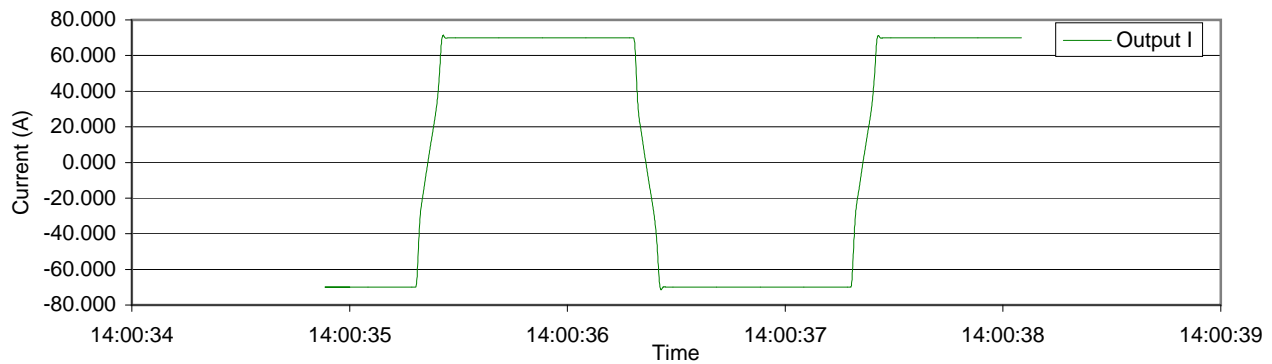
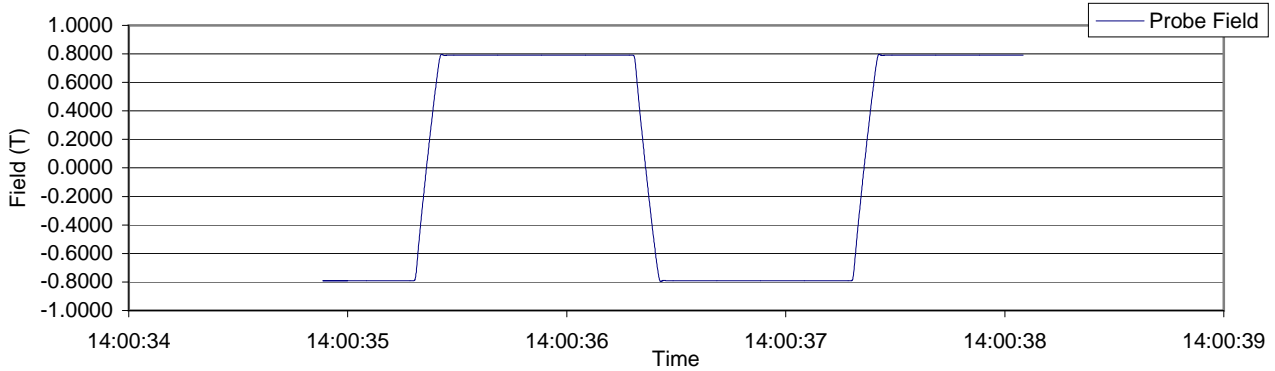
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Chiller set to 20 deg C, flow rate 0.9/min@37psi

Note: with pole, Squarewave. 0.5Hz, 70A



GMW Associates
Electromagnet Waveform Plot

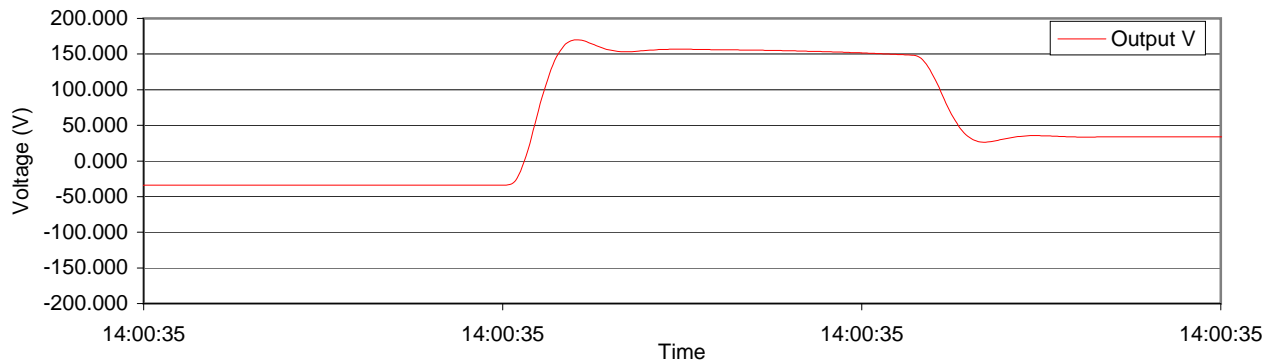
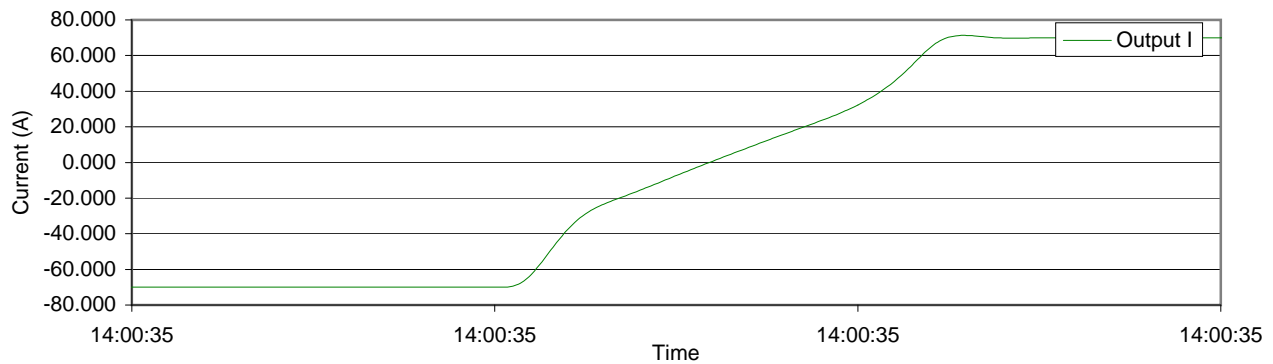
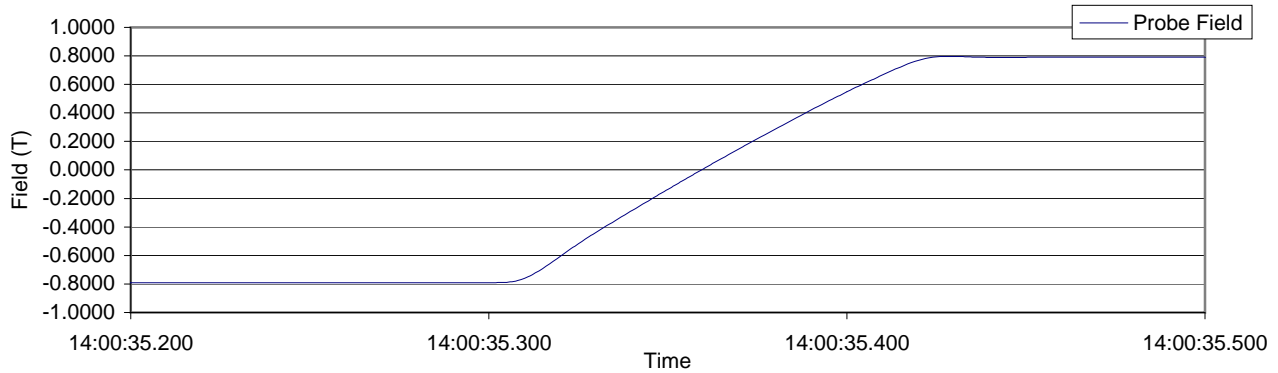
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Note: with pole, Squarewave. 0.5Hz, 70A



GMW Associates
Electromagnet Waveform Plot

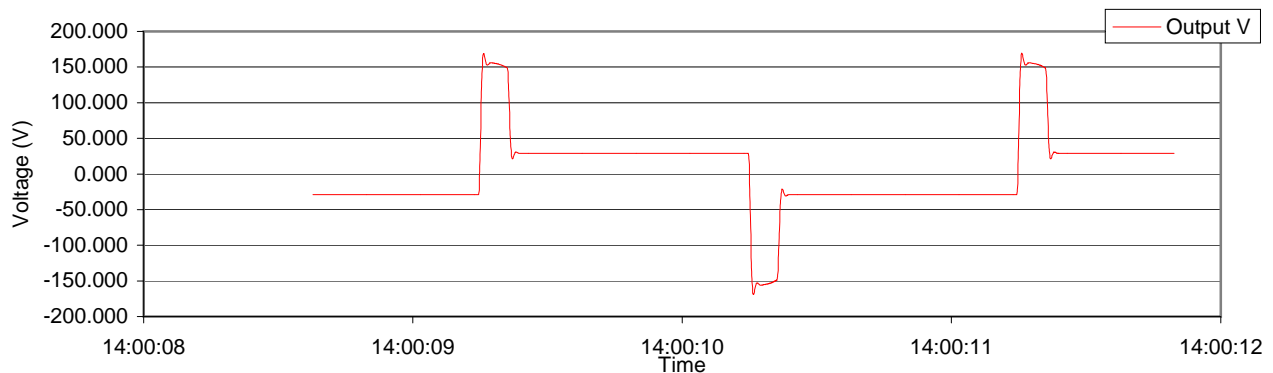
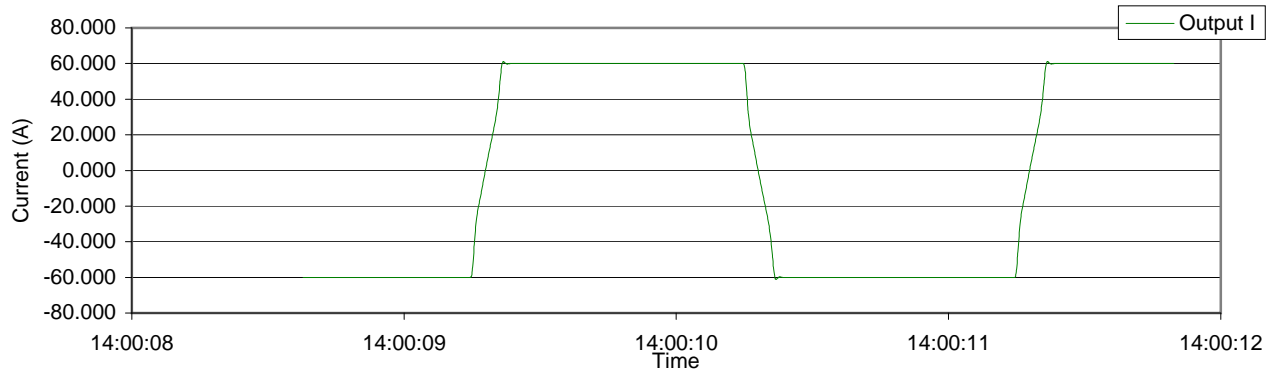
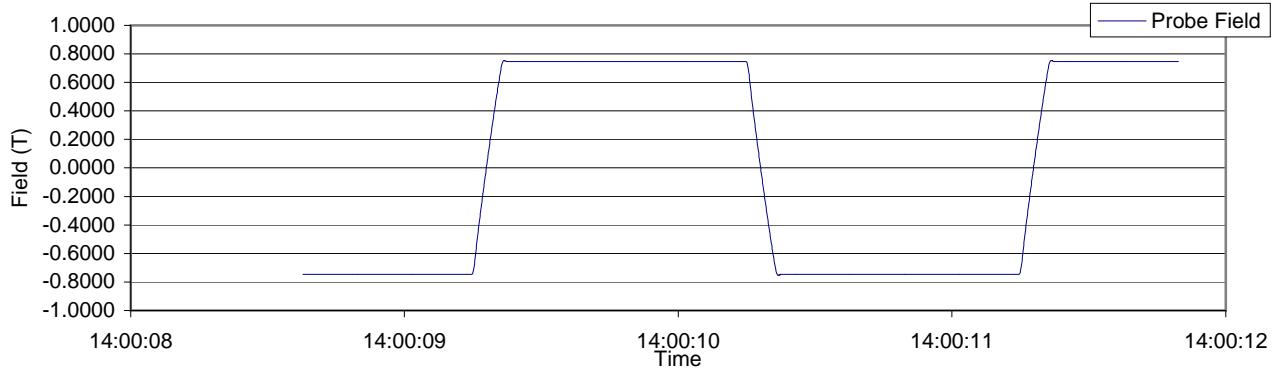
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Note: with pole, Squarewave. 0.5Hz, 60A



GMW Associates
Electromagnet Waveform Plot

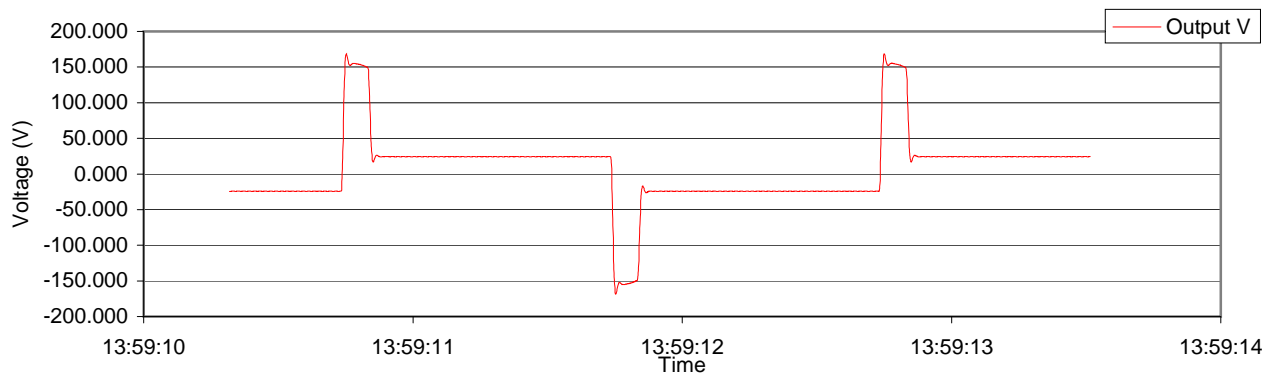
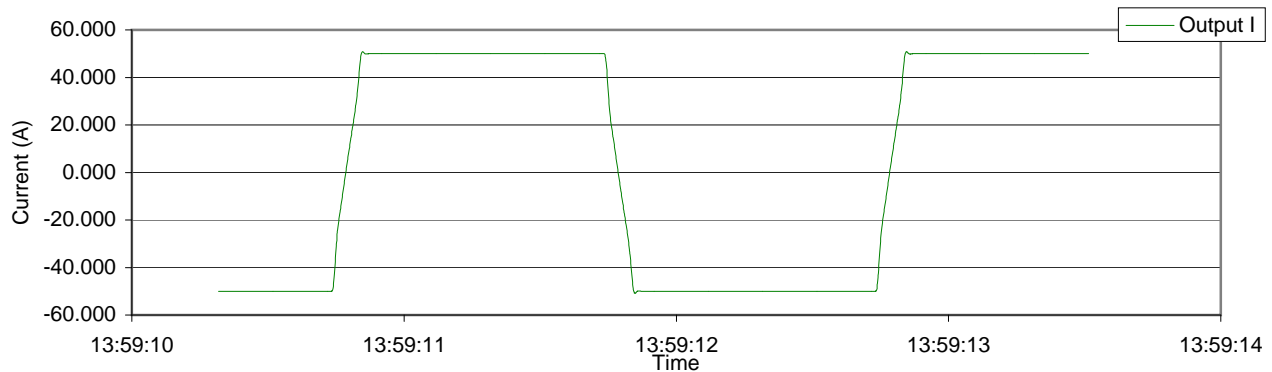
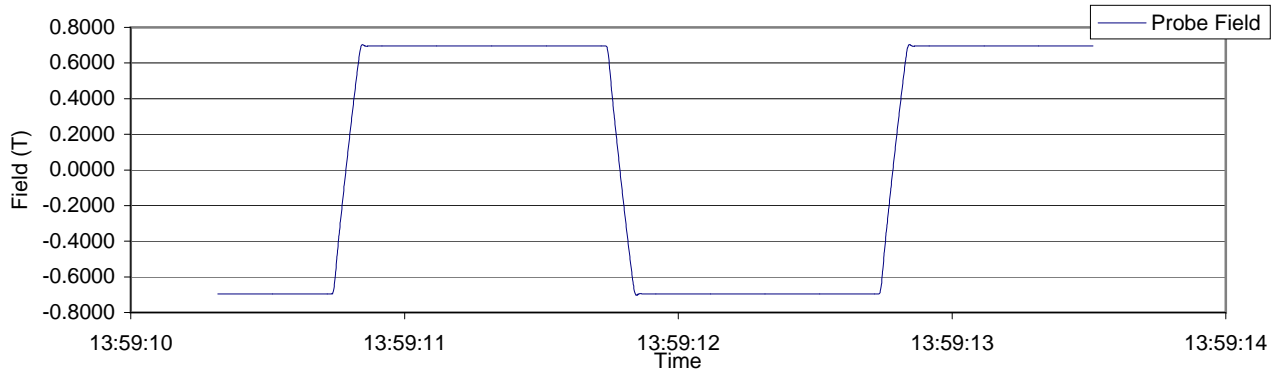
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Chiller set to 20 deg C, flow rate 0.9/min@37psi

Note: with pole, Squarewave. 0.5Hz, 50A



GMW Associates
Electromagnet Waveform Plot

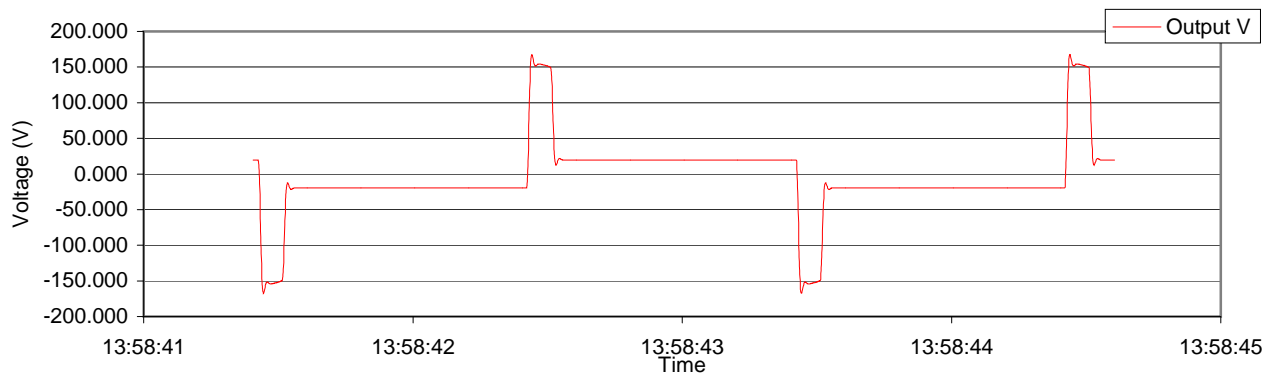
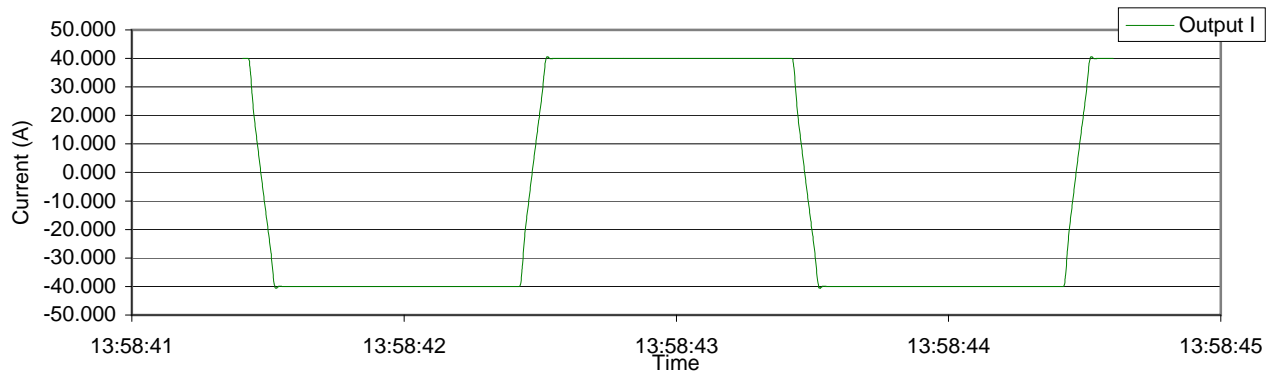
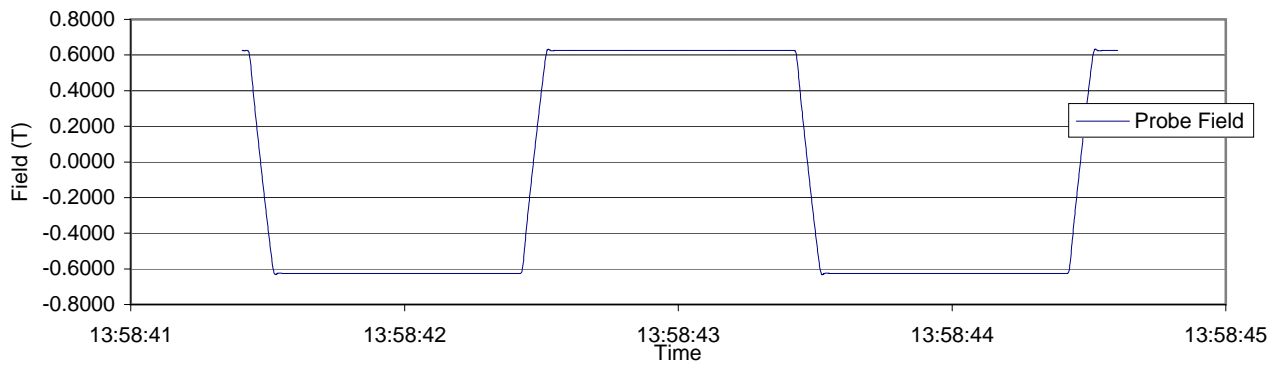
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Chiller set to 20 deg C, flow rate 0.9/min@37psi

Note: with pole, Squarewave. 0.5Hz, 40A



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Electromagnet Waveform Plot

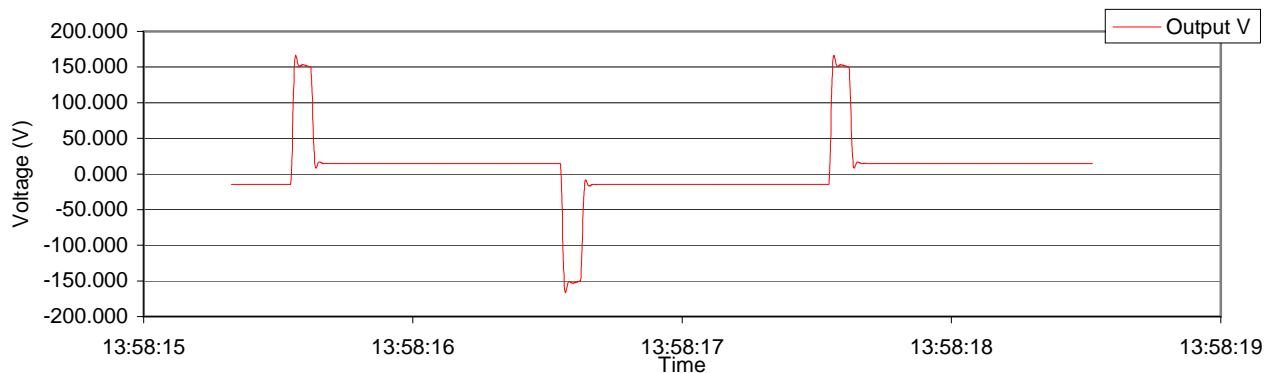
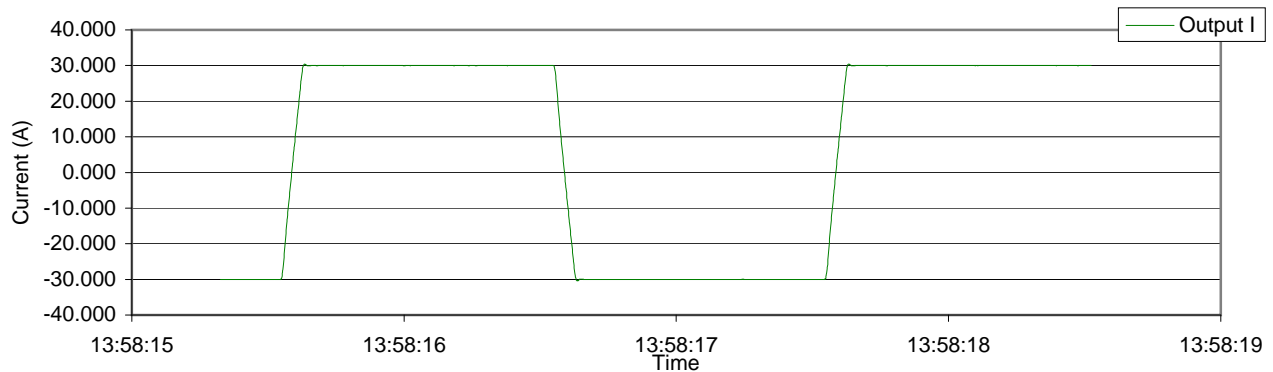
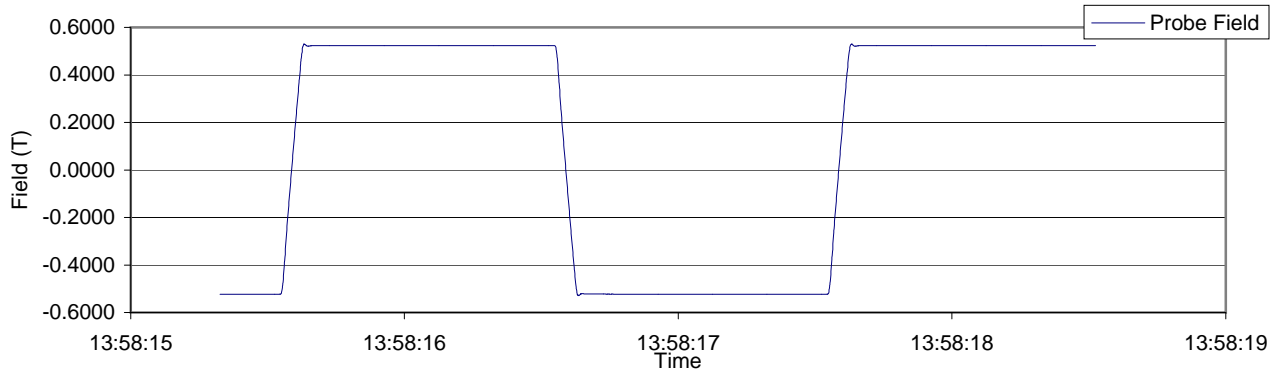
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Chiller set to 20 deg C, flow rate 0.9/min@37psi

Note: with pole, Squarewave. 0.5Hz, 30A



GMW Associates
Electromagnet Waveform Plot

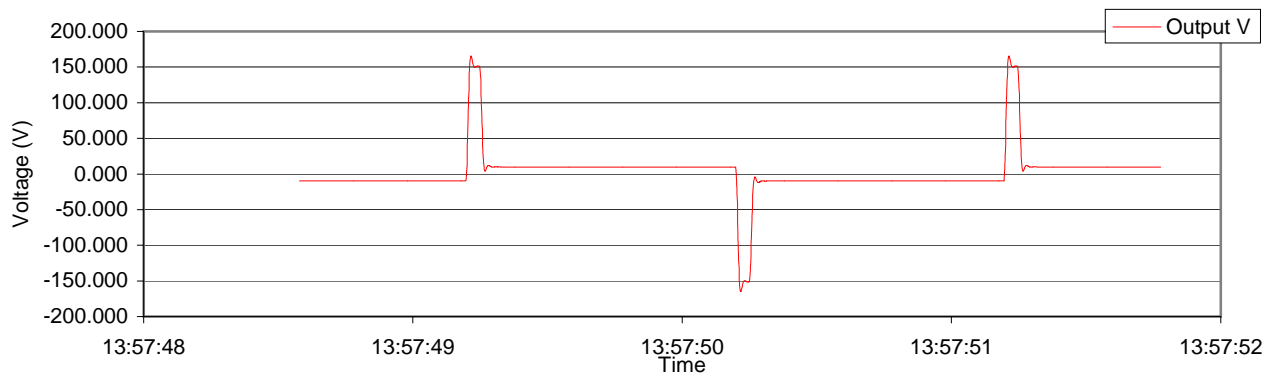
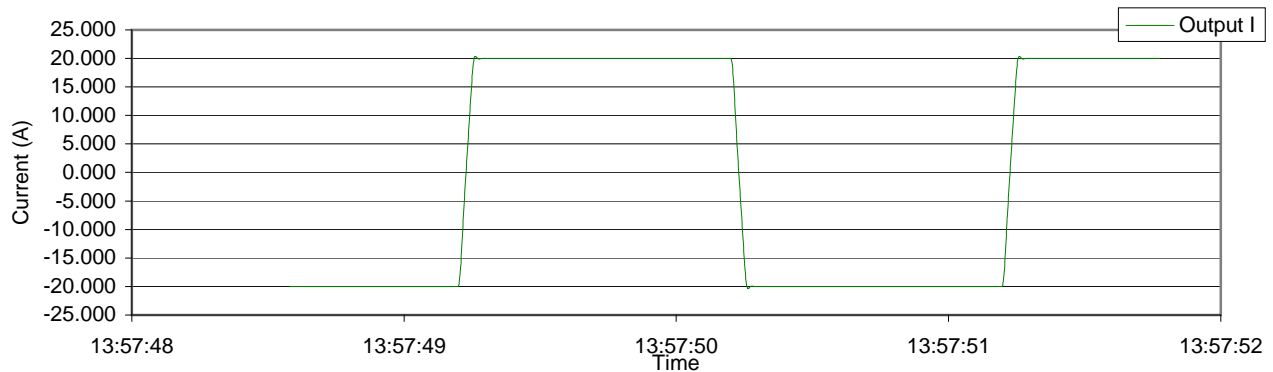
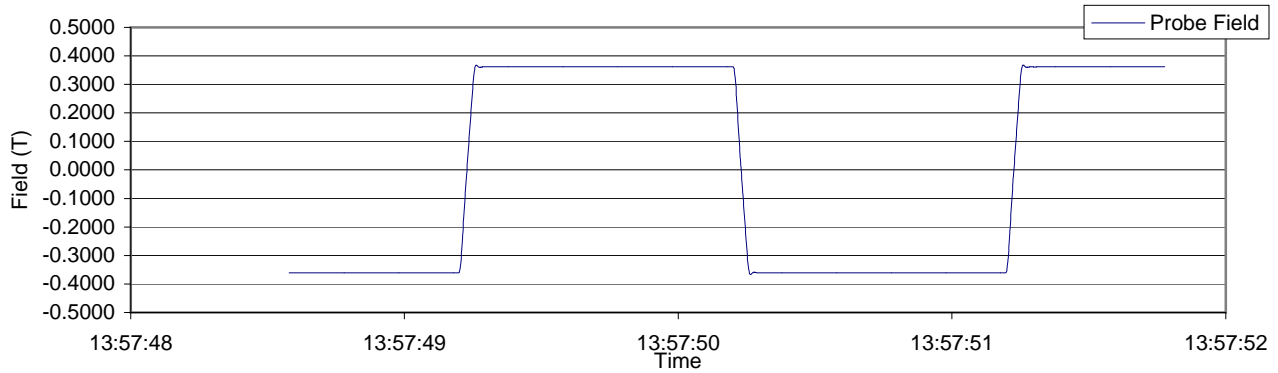
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Chiller set to 20 deg C, flow rate 0.9/min@37psi

Note: with pole, Squarewave. 0.5Hz, 20A



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Electromagnet Waveform Plot

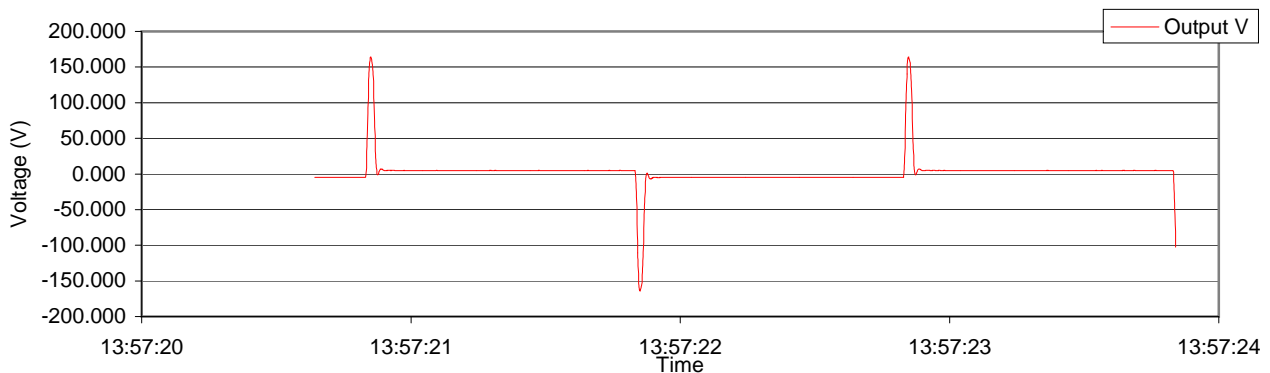
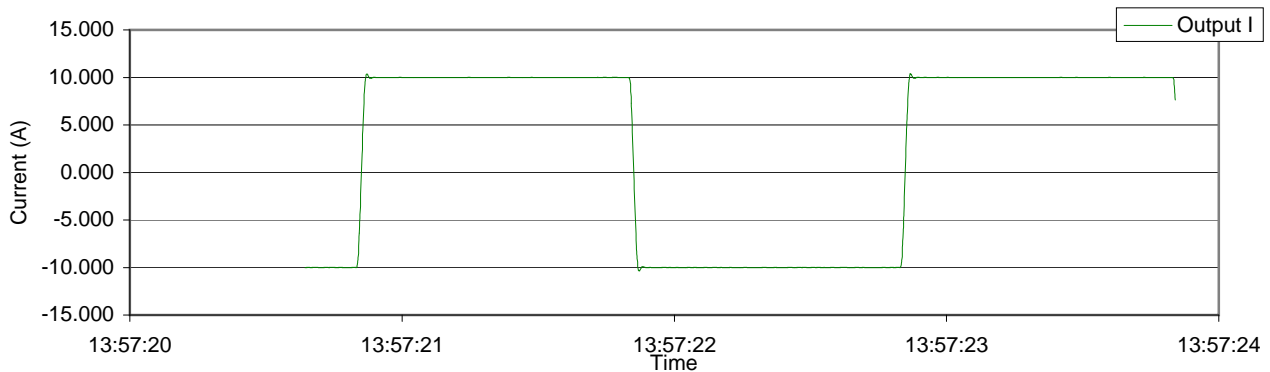
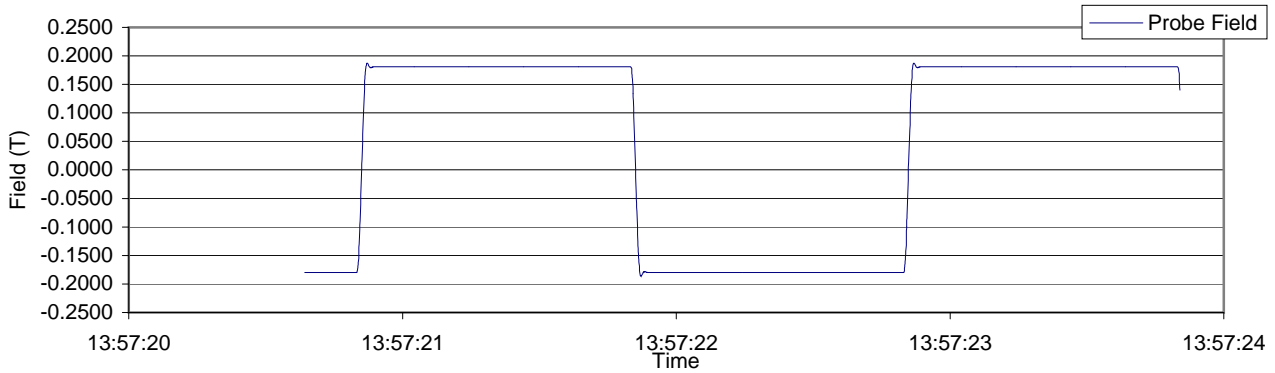
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Note: with pole, Squarewave. 0.5Hz, 10A



GMW Associates
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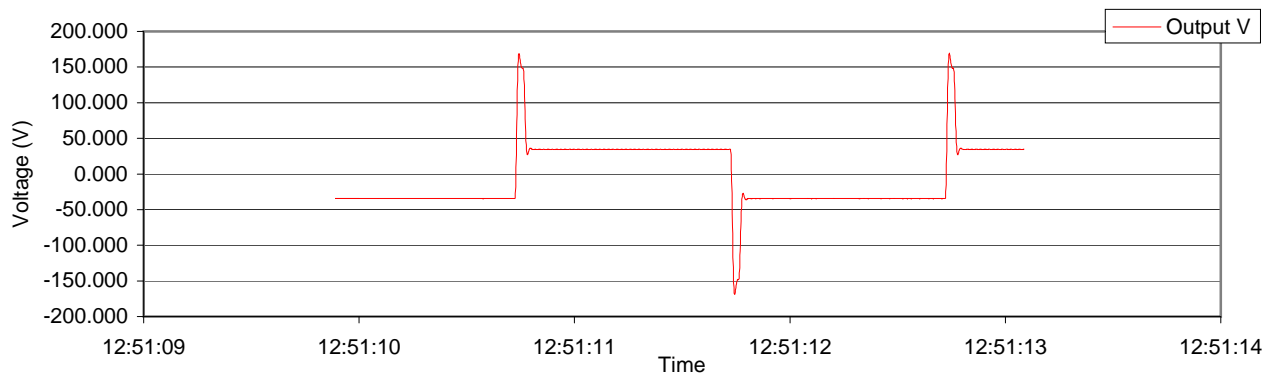
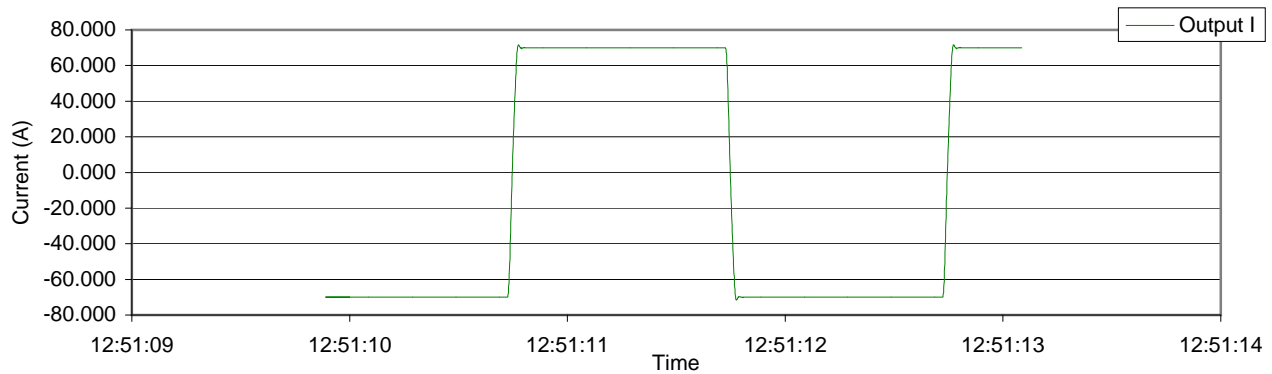
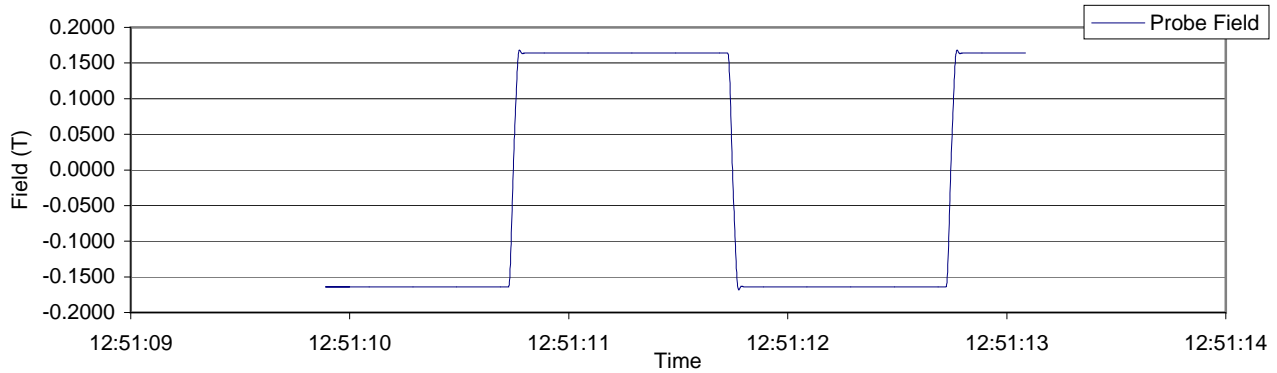
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Note: no pole, Squarewave. 0.5Hz, 70A



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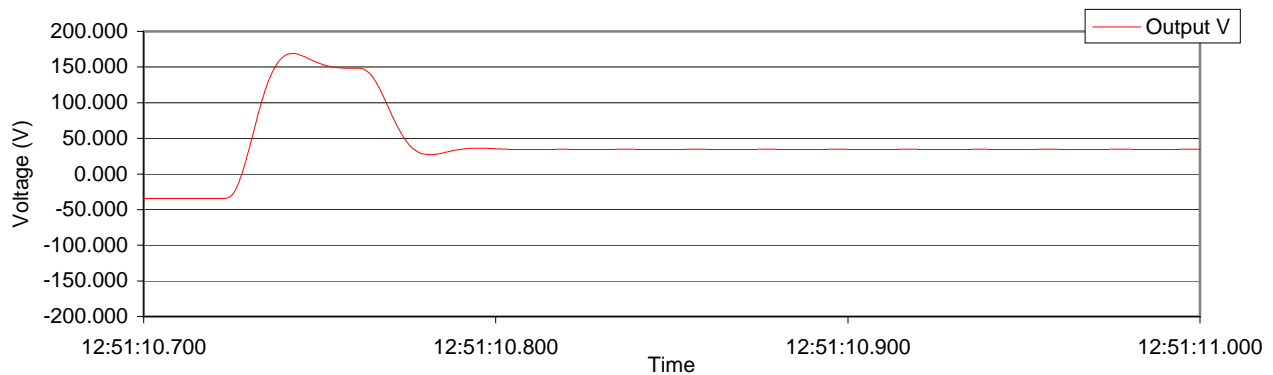
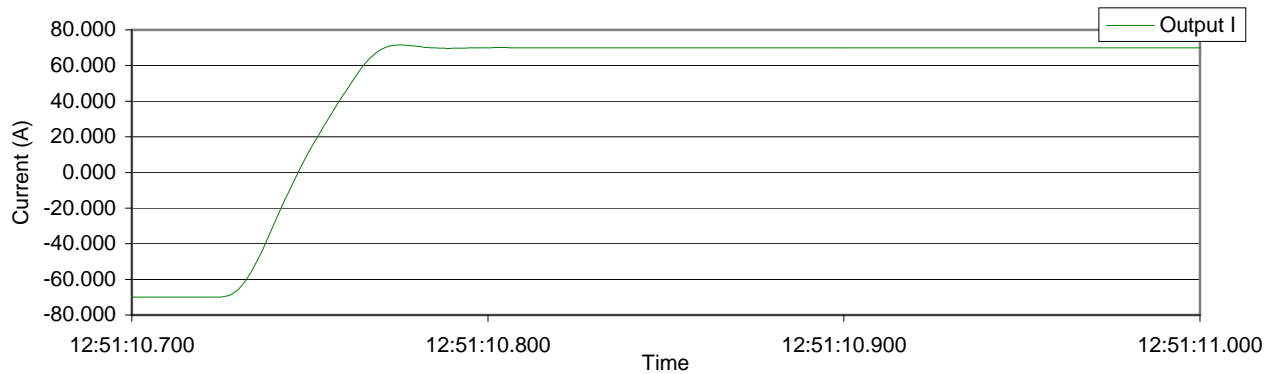
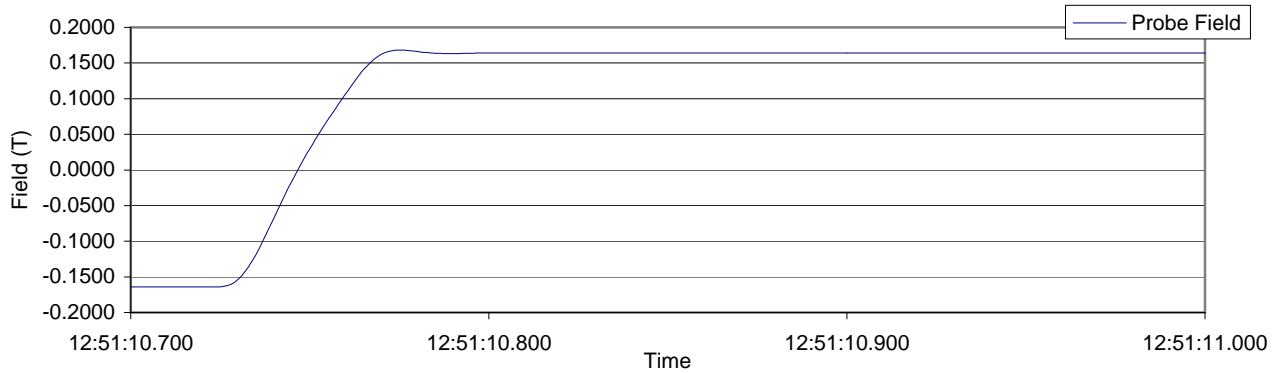
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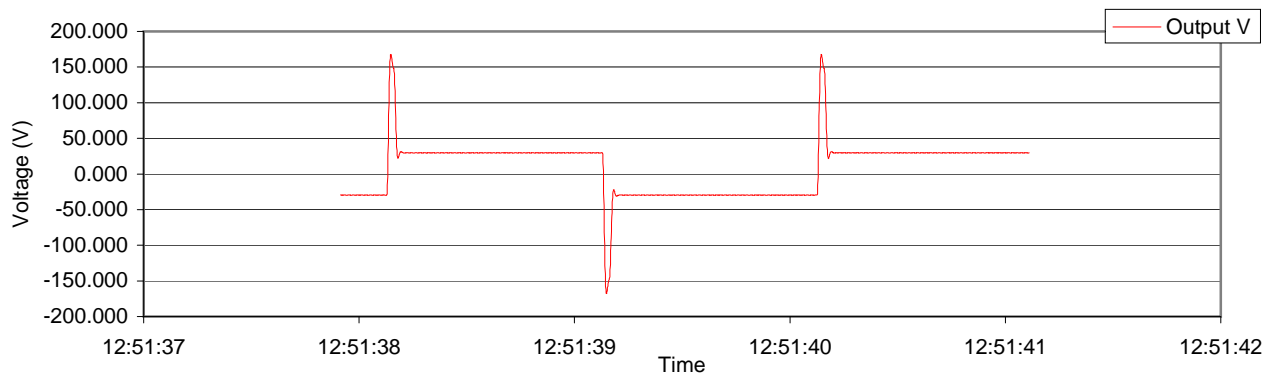
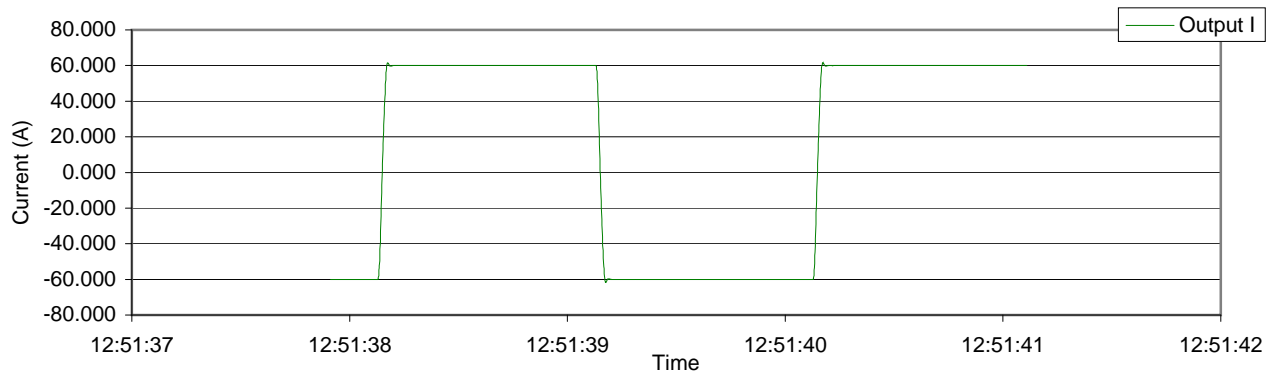
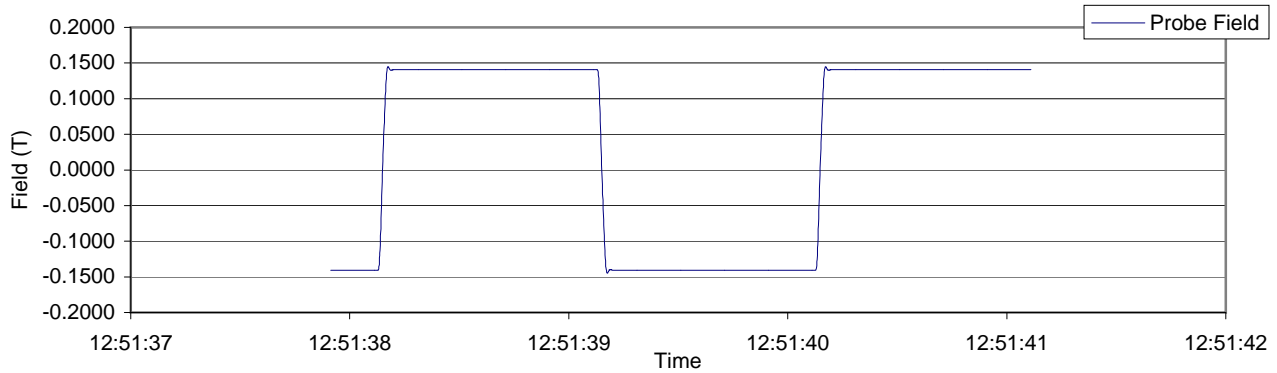
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GMW Associates
Electromagnet Waveform Plot

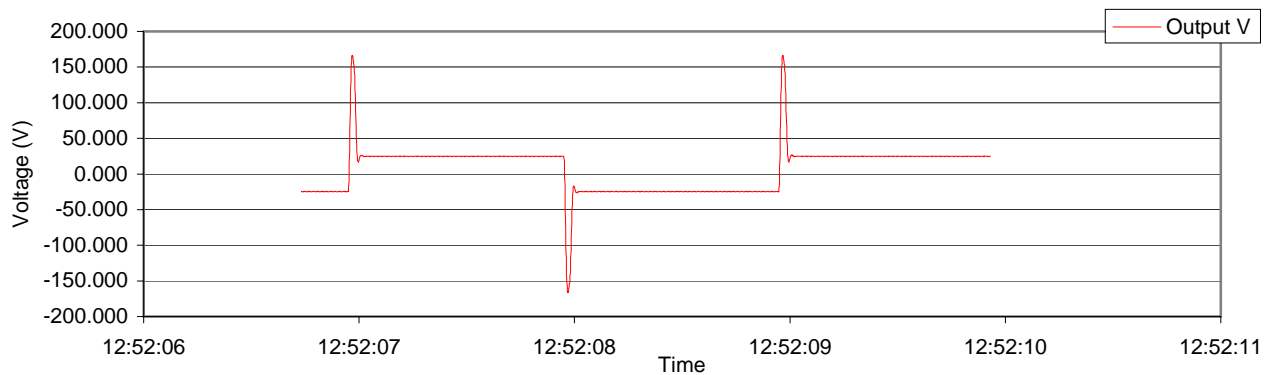
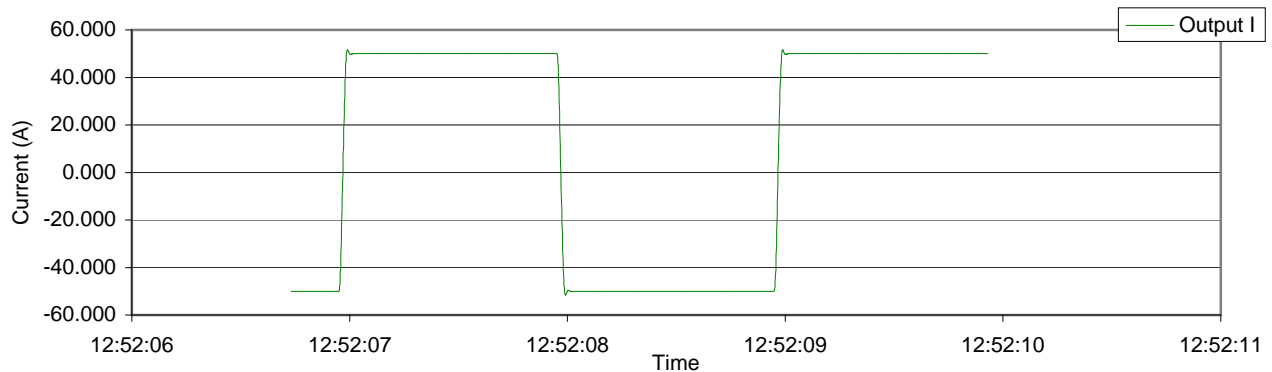
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Note: no pole, Squarewave. 0.5Hz, 50A



GMW Associates
Electromagnet Waveform Plot

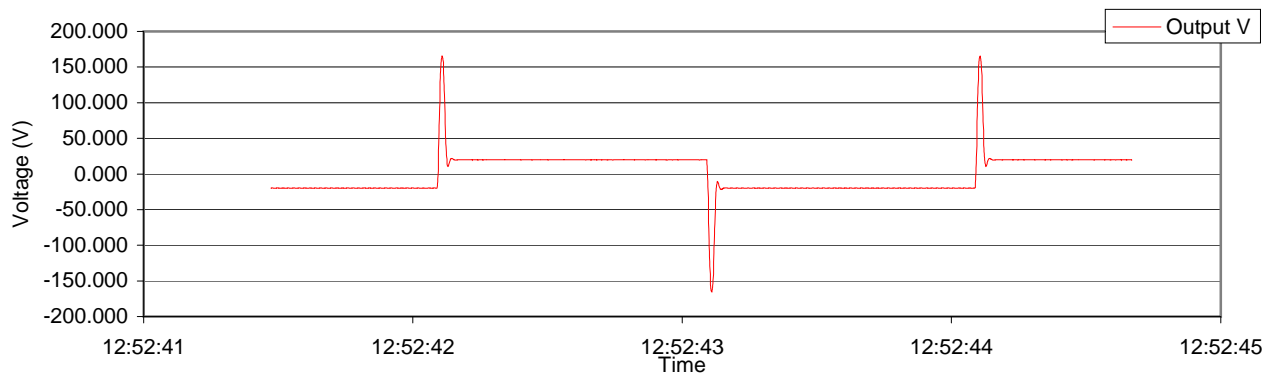
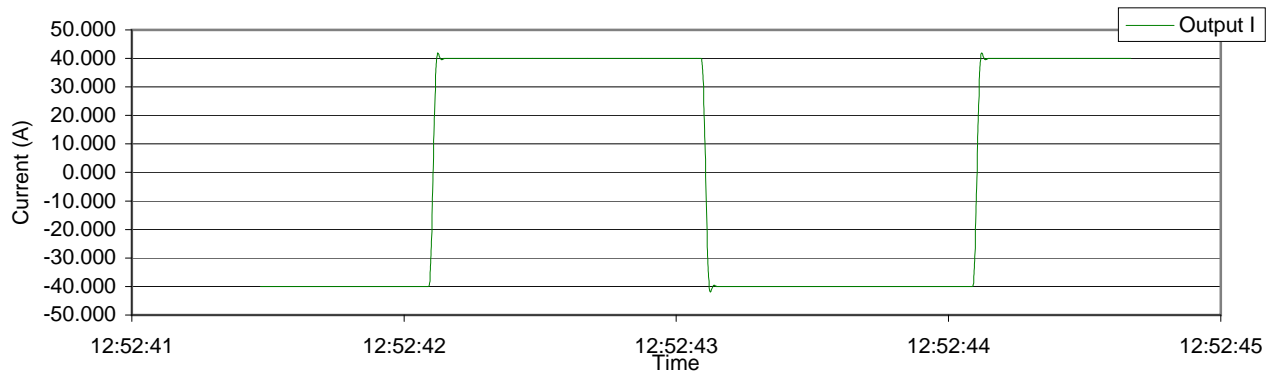
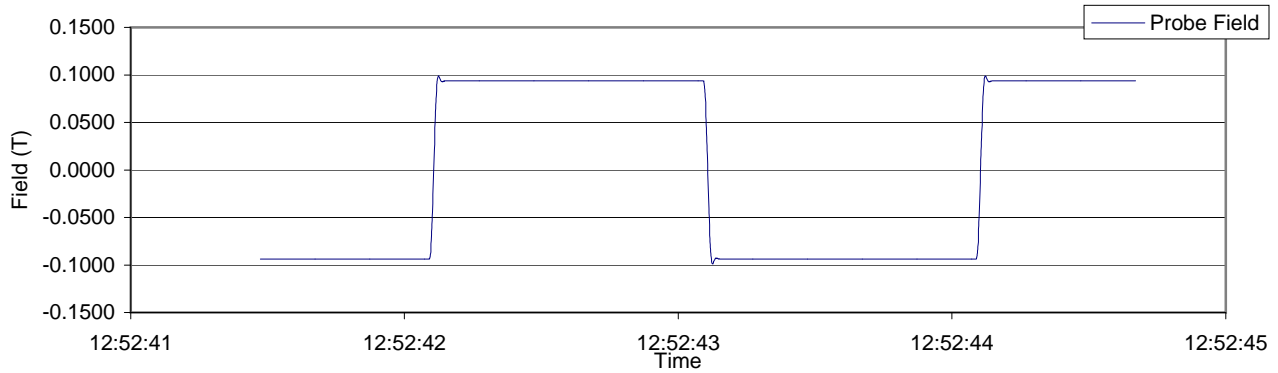
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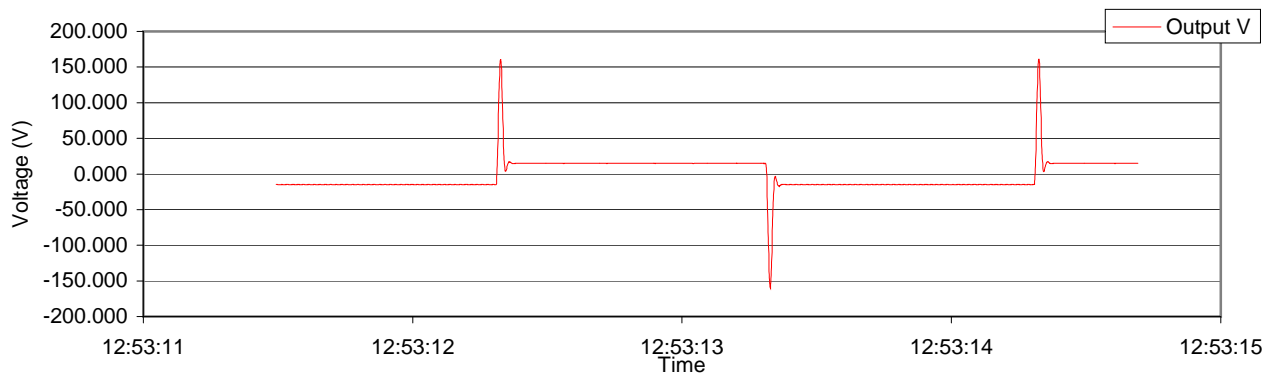
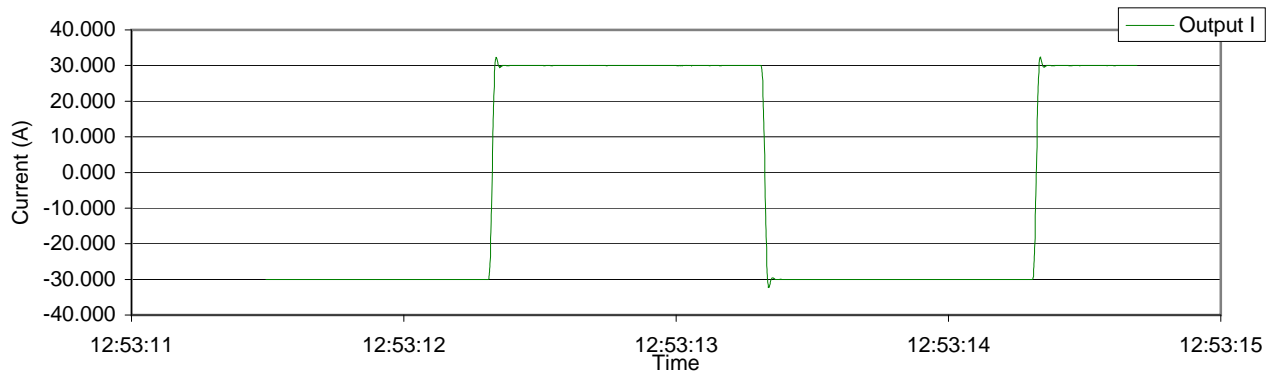
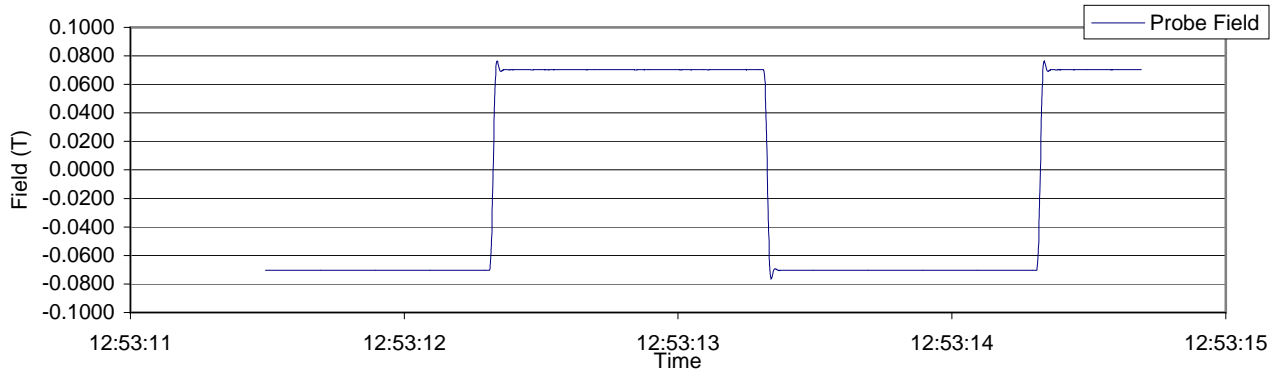
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Note: no pole, Squarewave. 0.5Hz, 30A



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Electromagnet Waveform Plot

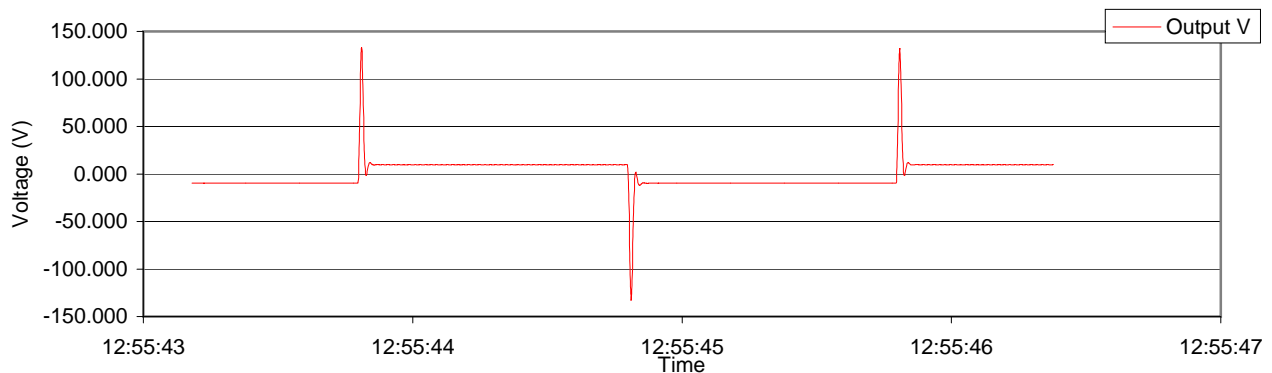
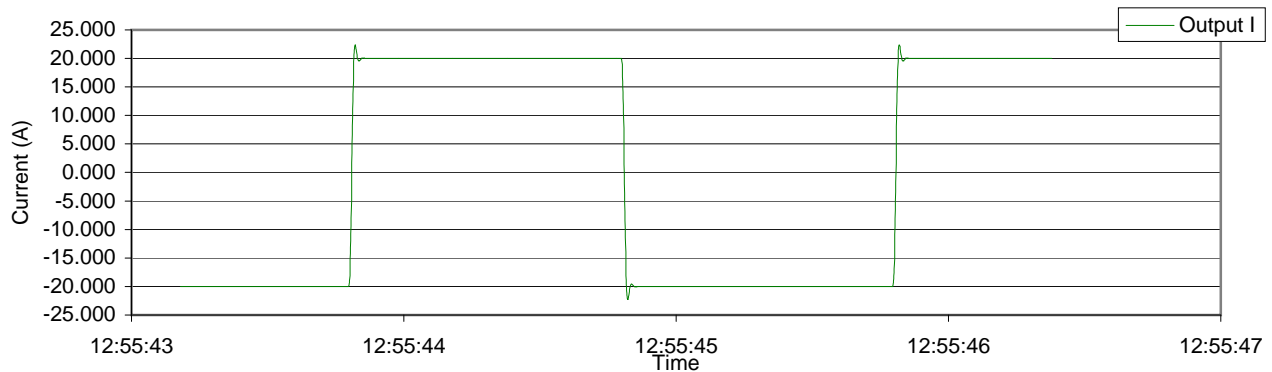
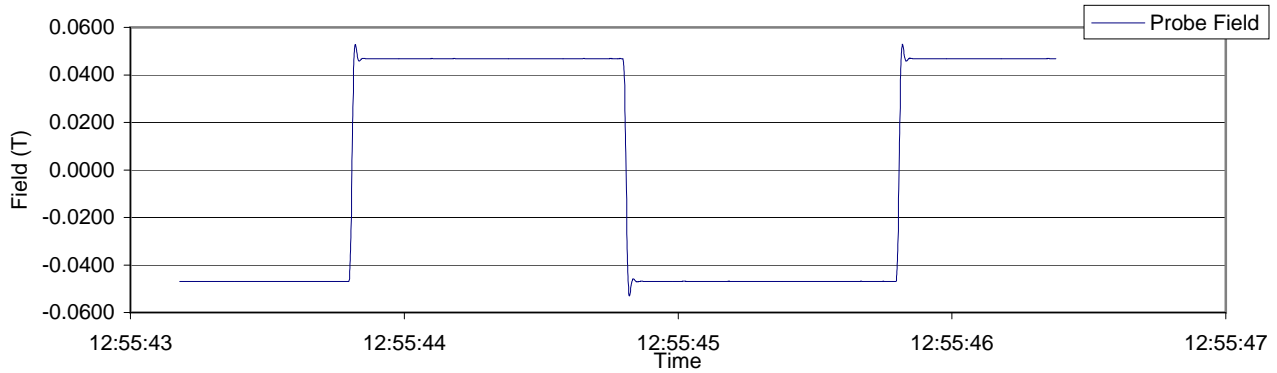
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Note: no pole, Squarewave. 0.5Hz, 20A



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Electromagnet Waveform Plot

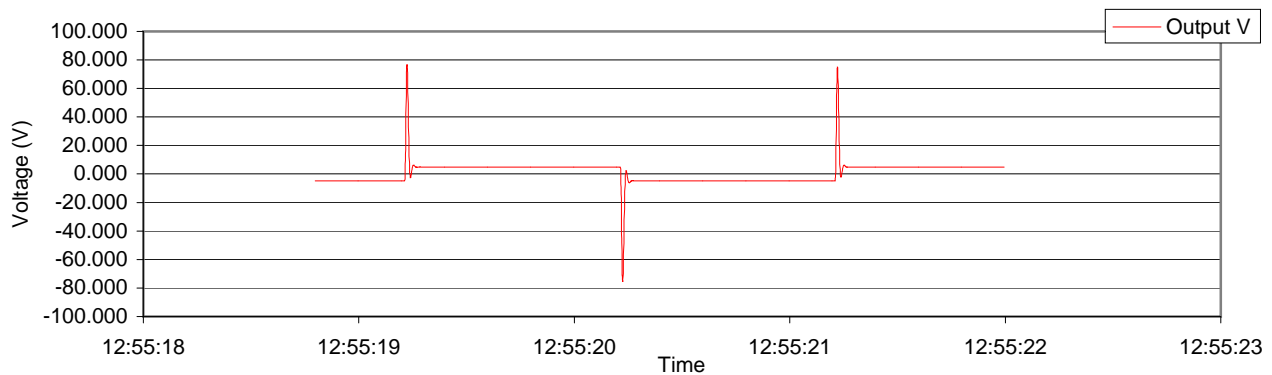
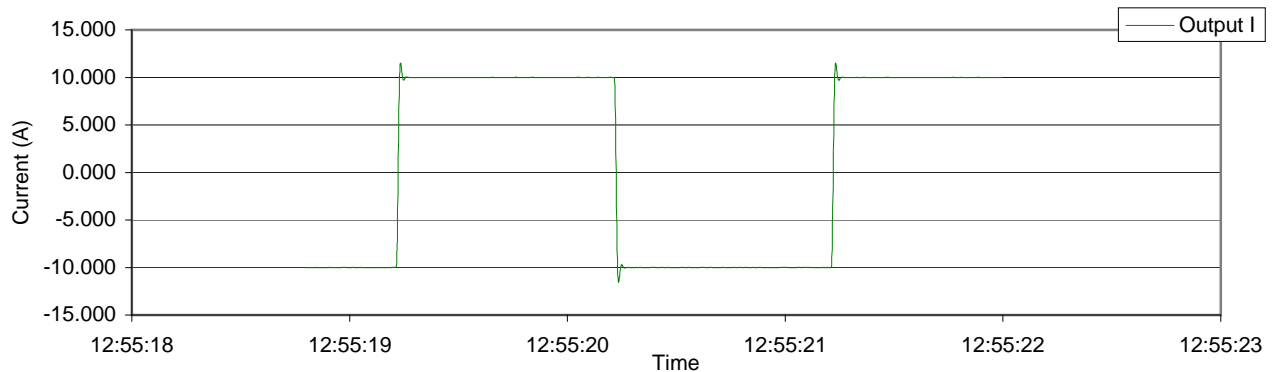
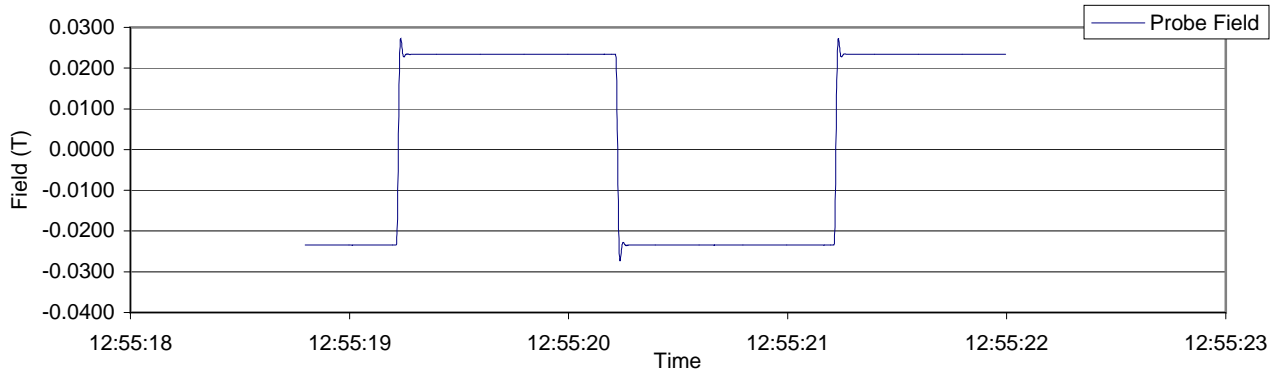
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Note: no pole, Squarewave. 0.5Hz, 10A



GMW Associates
Electromagnet Excitation Plot

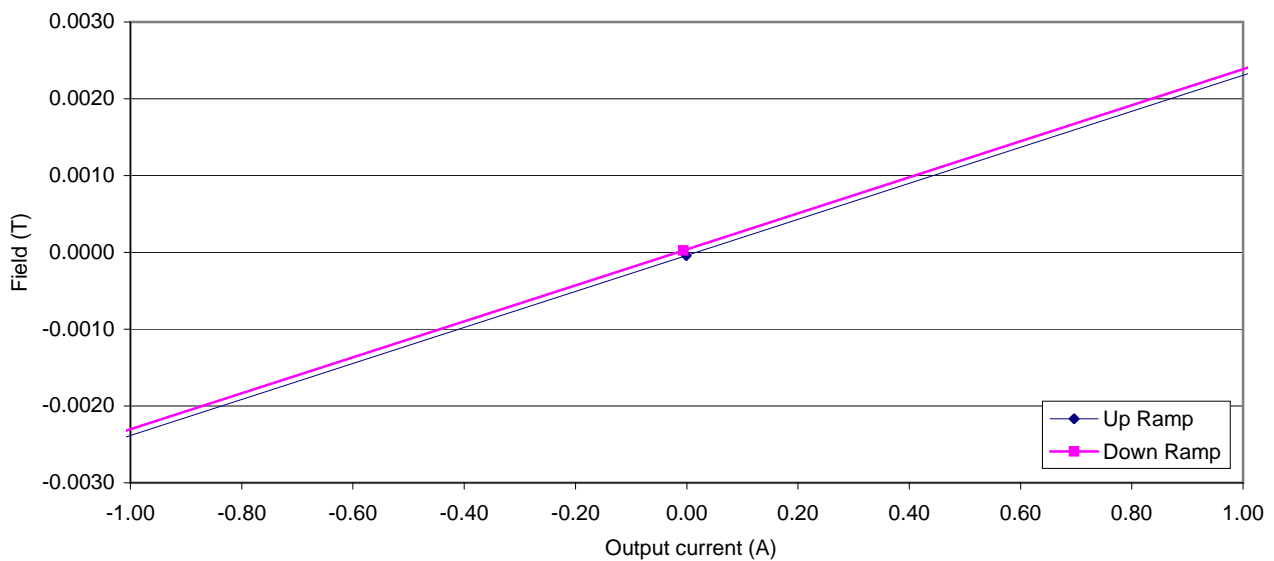
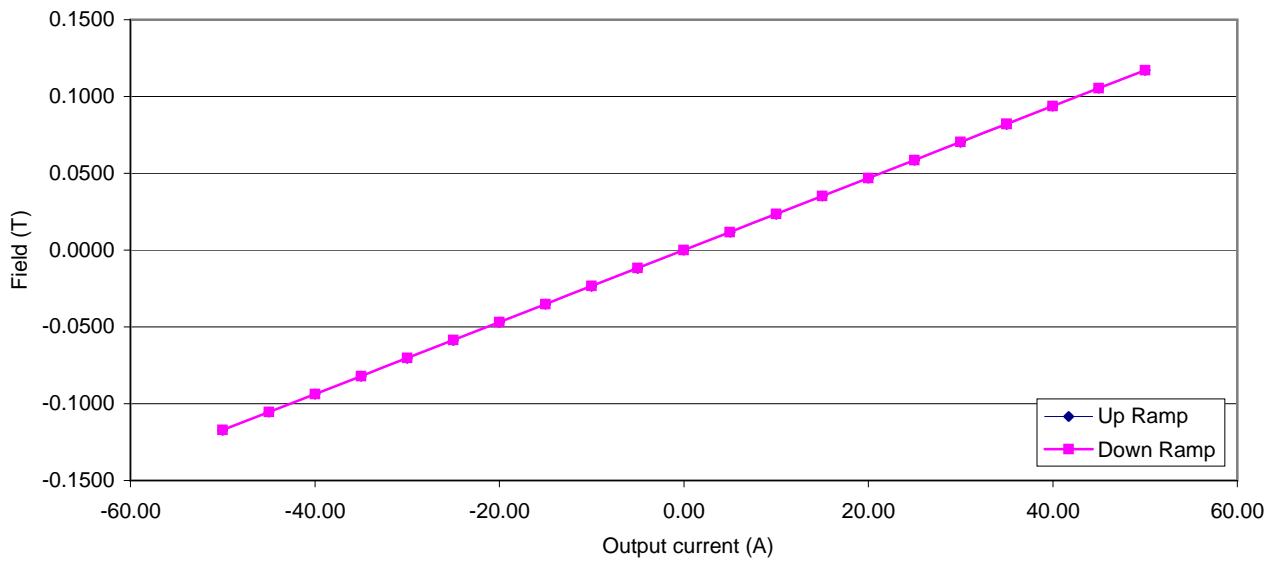
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Note: no pole, Excitation



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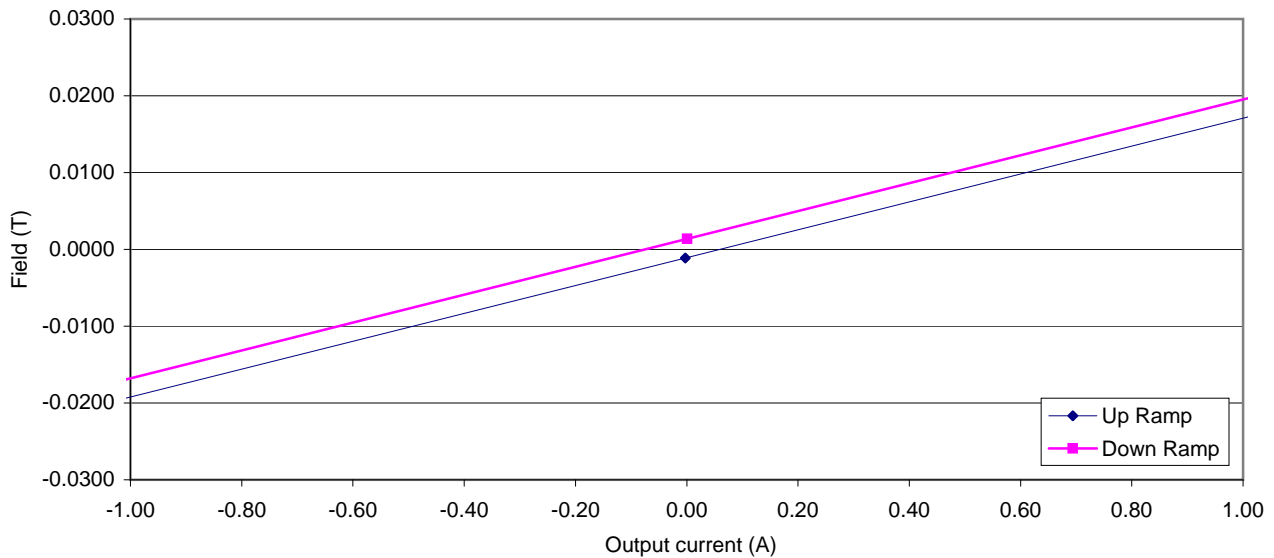
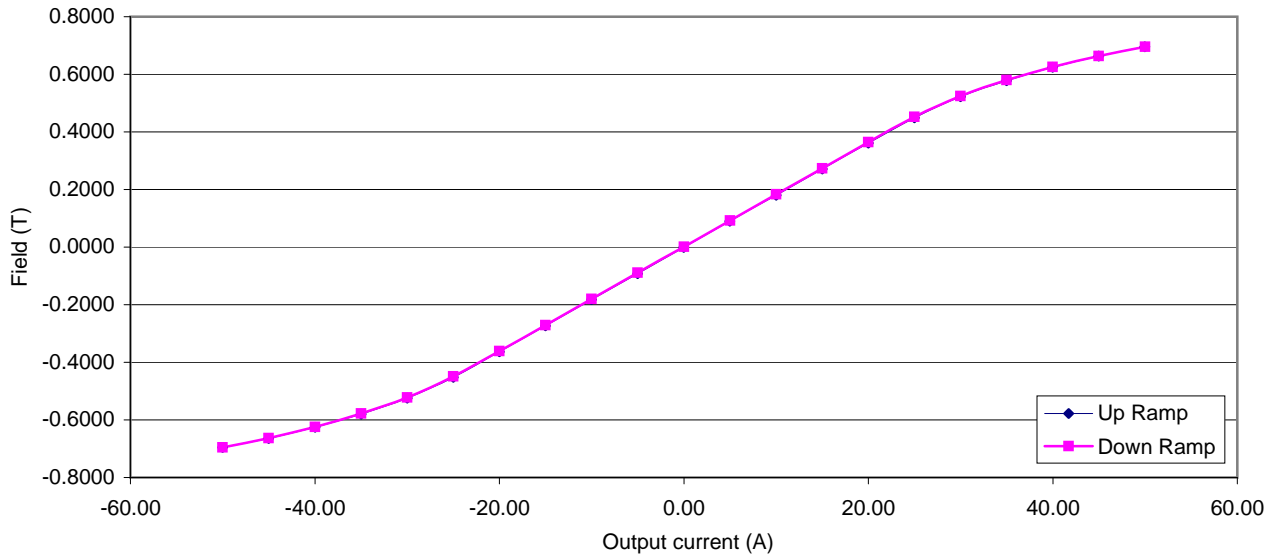
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Note: with pole, Excitation



GMW Associates
Electromagnet Uniformity Plot

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PS Serial No: 4611FD24
Pole face: 60mm Pole Gap: 46mm Axial hole: 4mm

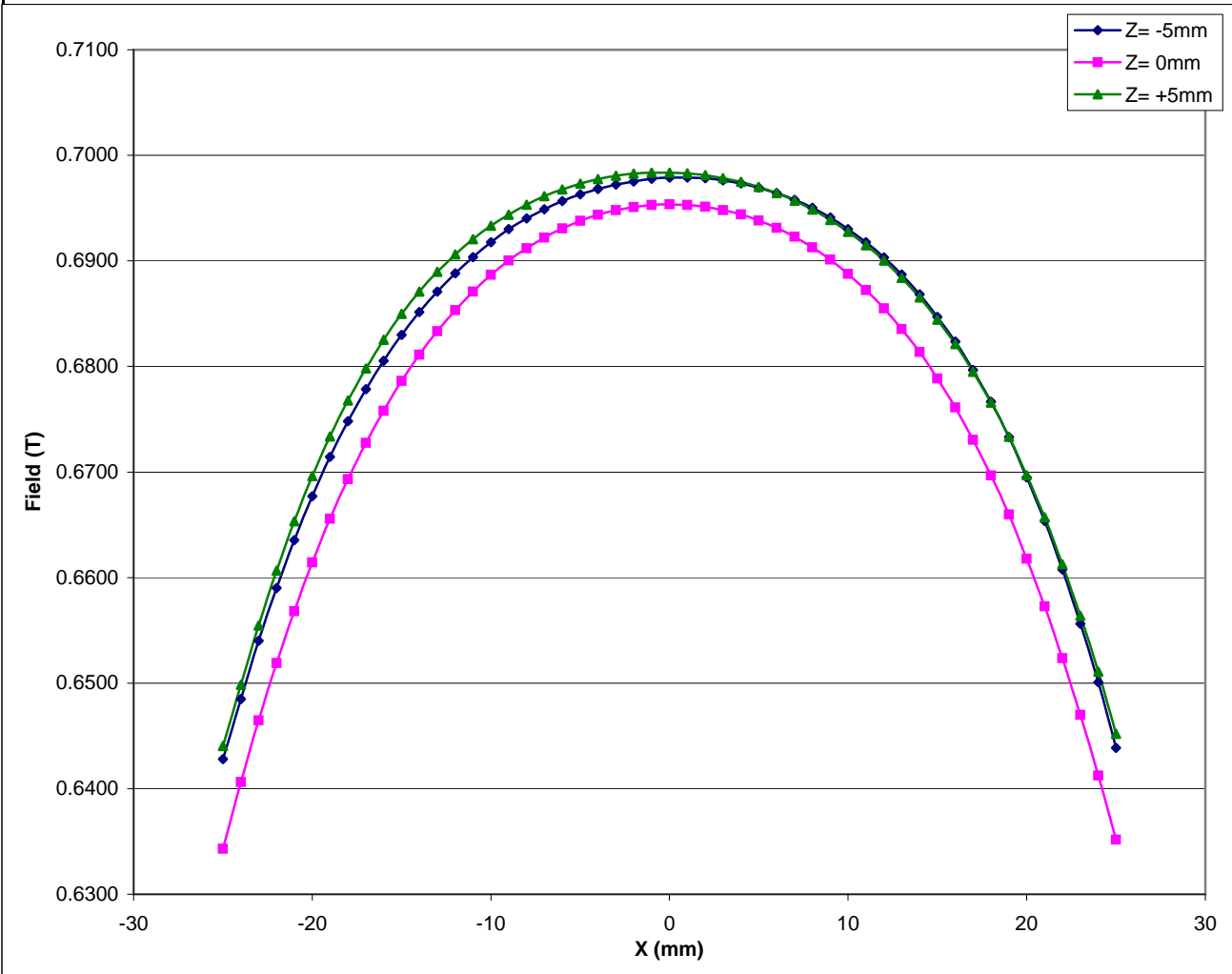
Field probe: Senis 0YA02F-J02T0K5J SN:059-12, read using Agilent 34970A sn:US37035272

Chilleer: NesLAB ThermoFlex2500 SN:0110362601121207
Chiller set to 20 deg C, flow rate 0.9/min@37psi

Note 1: mapper axis
z-axis: horizontal along pole axis, +z=+field direction
y-axis: vertical +y upwards
x-axis: along gap.

Note 2: with pole. X = -25mm to +25mm, Y = 0 mm, Z = -5, 0, +5mm

Note 3: I=50A



GMW Associates
Electromagnet Uniformity Plot

Date: Jan 4, 2013 Page: 2 of 4
Engr: Y.Qin

Model: 5403AC Power Supply: 231HC
PS Serial No: 4611FD24
Pole face: 60mm Pole Gap: 46mm Axial hole: 4mm

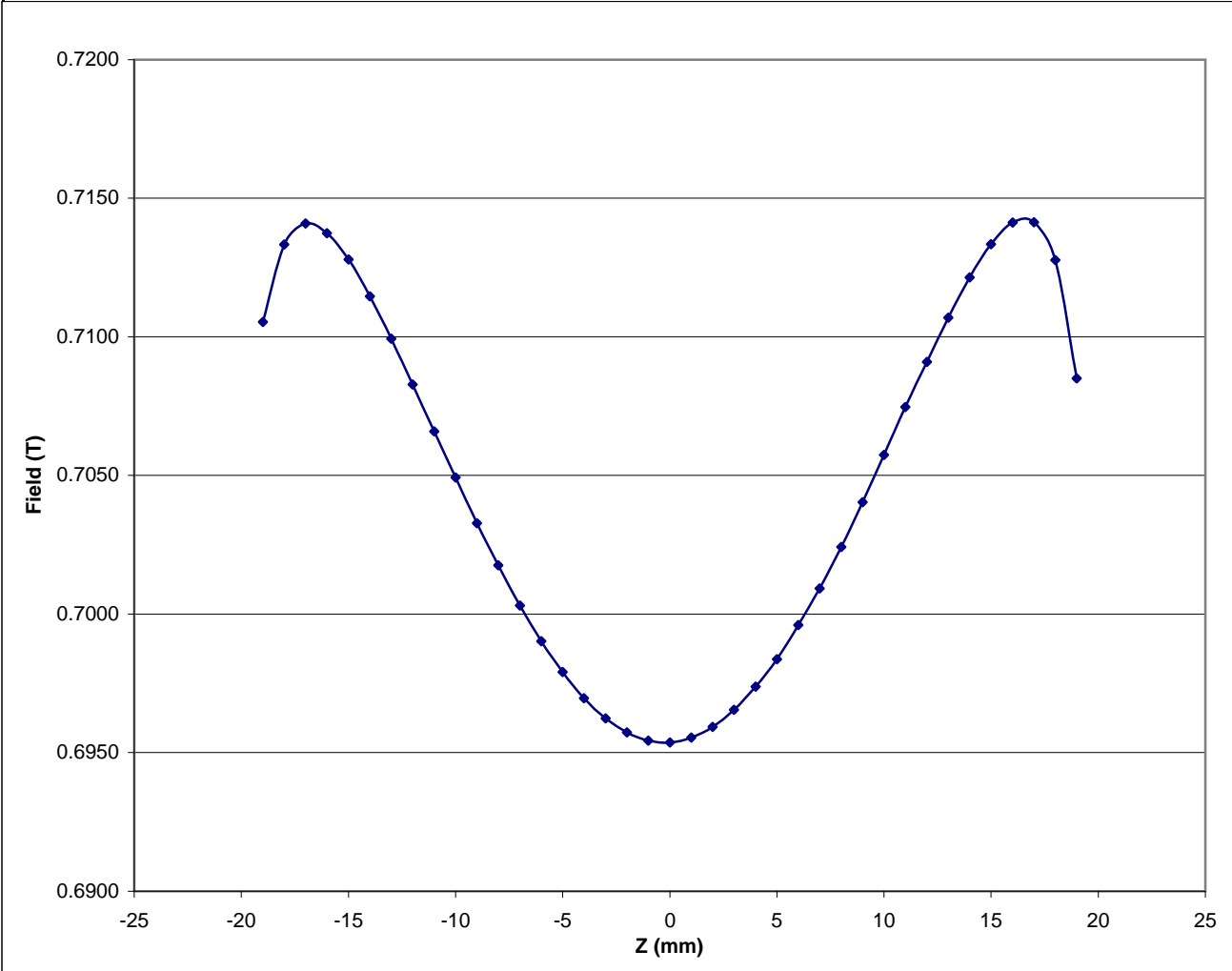
Field probe: Senis 0YA02F-J02T0K5J SN:059-12, read using Agilent 34970A sn:US37035272

Chilleer: NesLAB ThermoFlex2500 SN:0110362601121207
Chiller set to 20 deg C, flow rate 0.9/min@37psi

Note 1: mapper axis
z-axis: horizontal along pole axis, +z=+field direction
y-axis: vertical +y upwards
x-axis: along gap.

Note 2: with pole. X = 0mm, Y = 0 mm, Z = -19 to +19mm

Note 3: I=50A



GMW Associates
Electromagnet Uniformity Plot

Date: Jan 4, 2013 Page: 3 of 4
Engr: Y.Qin

Model: 5403AC Power Supply: 231HC
Pole face: 60mm Pole Gap: 46mm Axial hole: 4mm
PS Serial No: 4611FD24

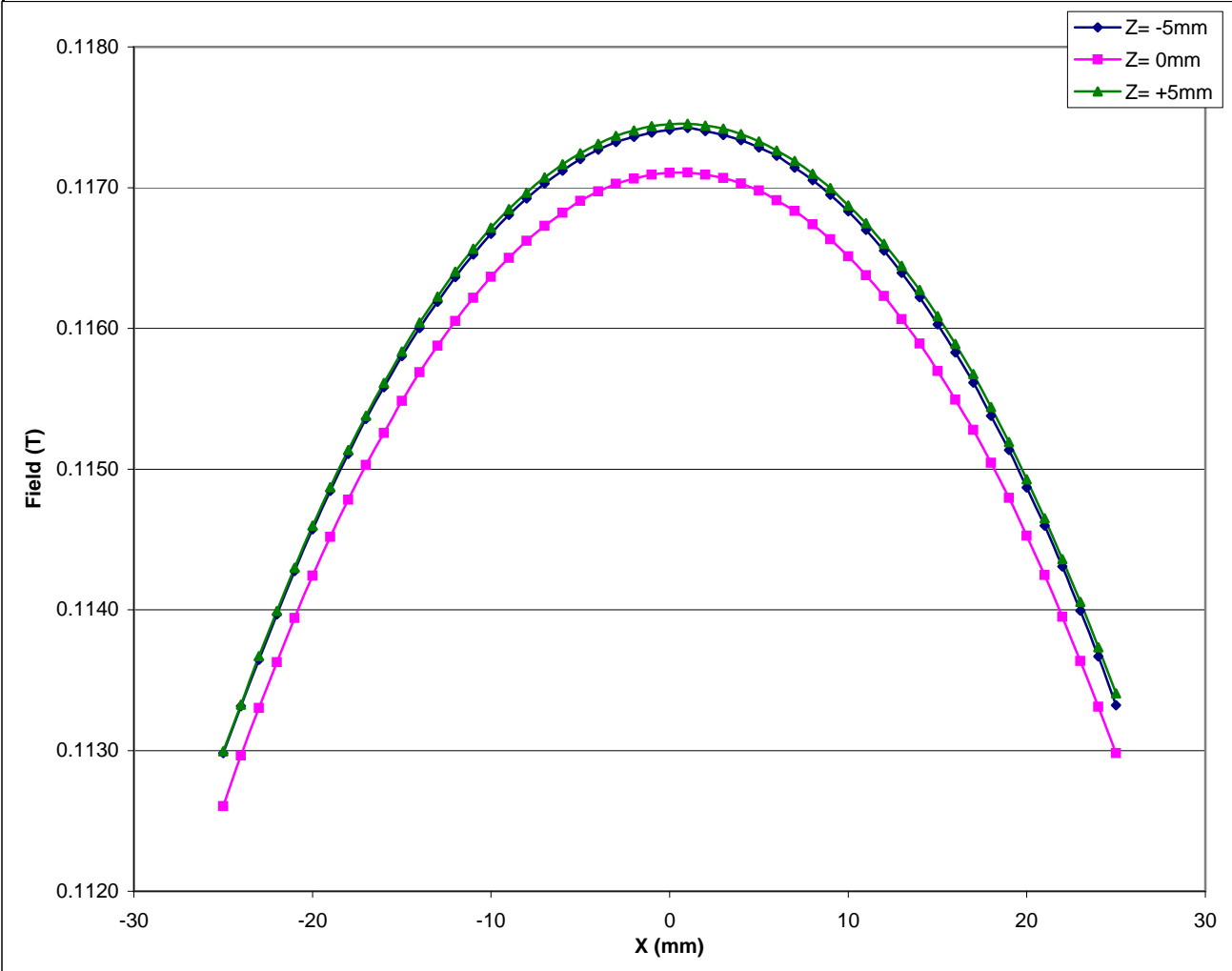
Field probe: Senis 0YA02F-J02T0K5J SN:059-12, read using Agilent 34970A sn:US37035272

Chilleer: NesLAB ThermoFlex2500 SN:0110362601121207
Chiller set to 20 deg C, flow rate 0.9/min@37psi

Note 1: mapper axis
z-axis: horizontal along pole axis, +z=+field direction
y-axis: vertical +y upwards
x-axis: along gap.

Note 2: no pole. X = -25mm to +25mm, Y = 0 mm, Z = -5, 0, +5mm

Note 3: I=50A



GMW Associates
Electromagnet Uniformity Plot

Date: Jan 4, 2013 Page: 4 of 4
Engr: Y.Qin

Model: 5403AC Power Supply: 231HC
PS Serial No: 4611FD24
Pole face: 60mm Pole Gap: 46mm Axial hole: 4mm

Field probe: Senis 0YA02F-J02T0K5J SN:059-12, read using Agilent 34970A sn:US37035272

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Note 3: I=50A

