

MODEL: 5201

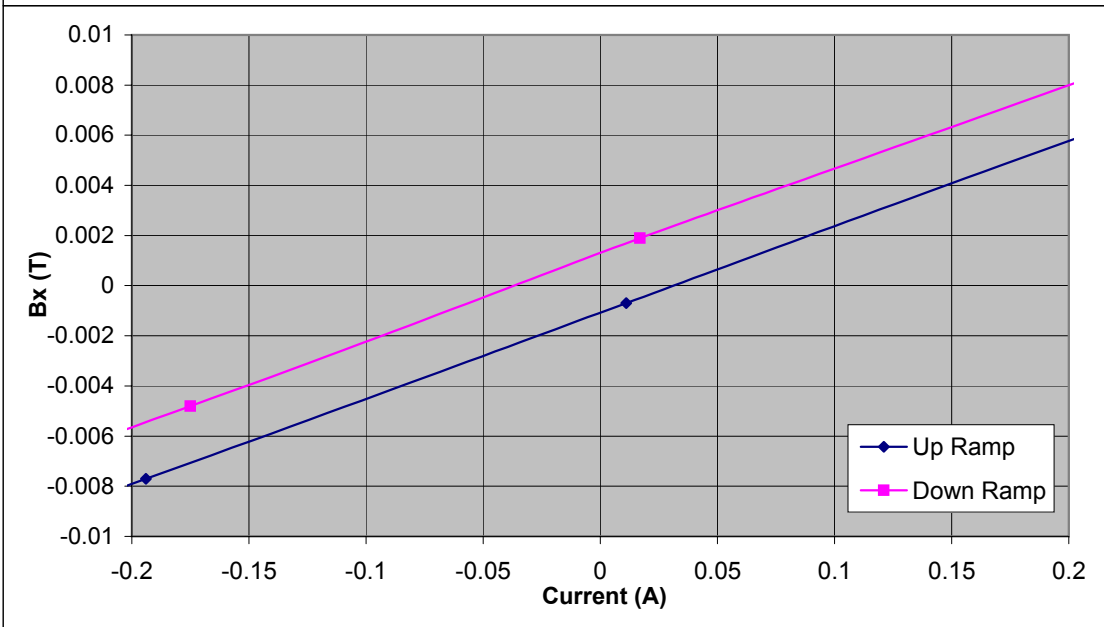
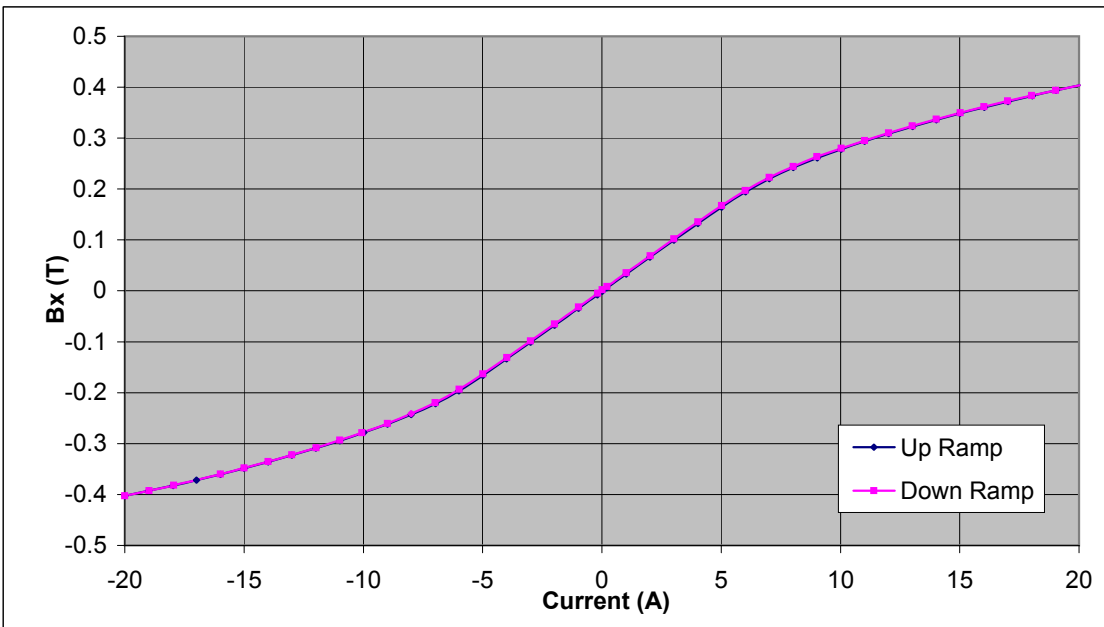
PROJECTED FIELD ELECTROMAGNET

TEST DATA Hysteresis & AC Excitation

PROPRIETARY
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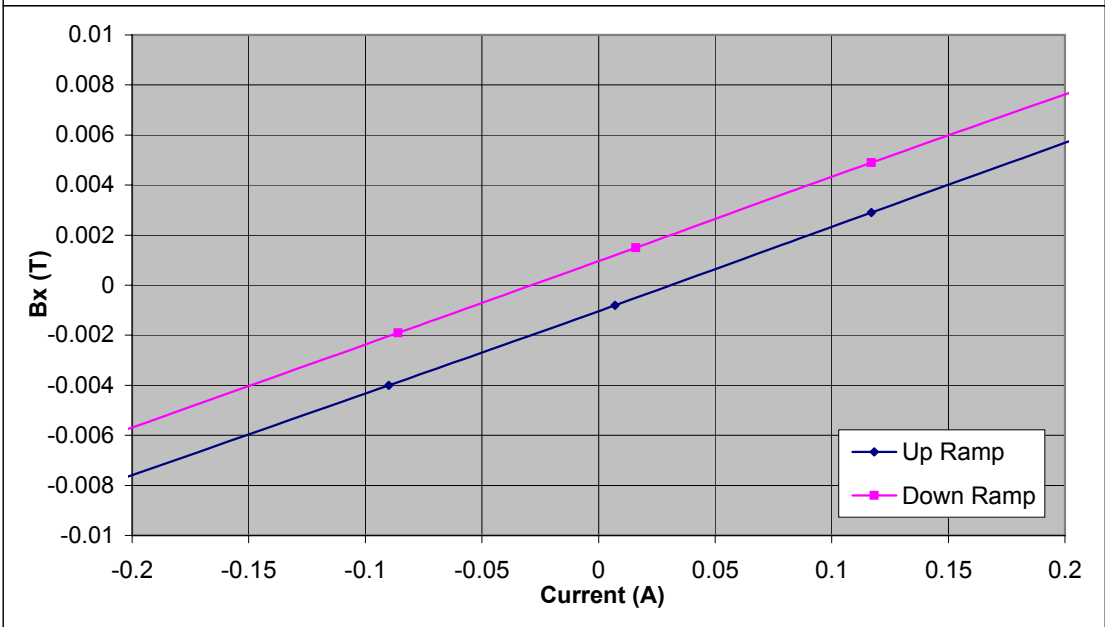
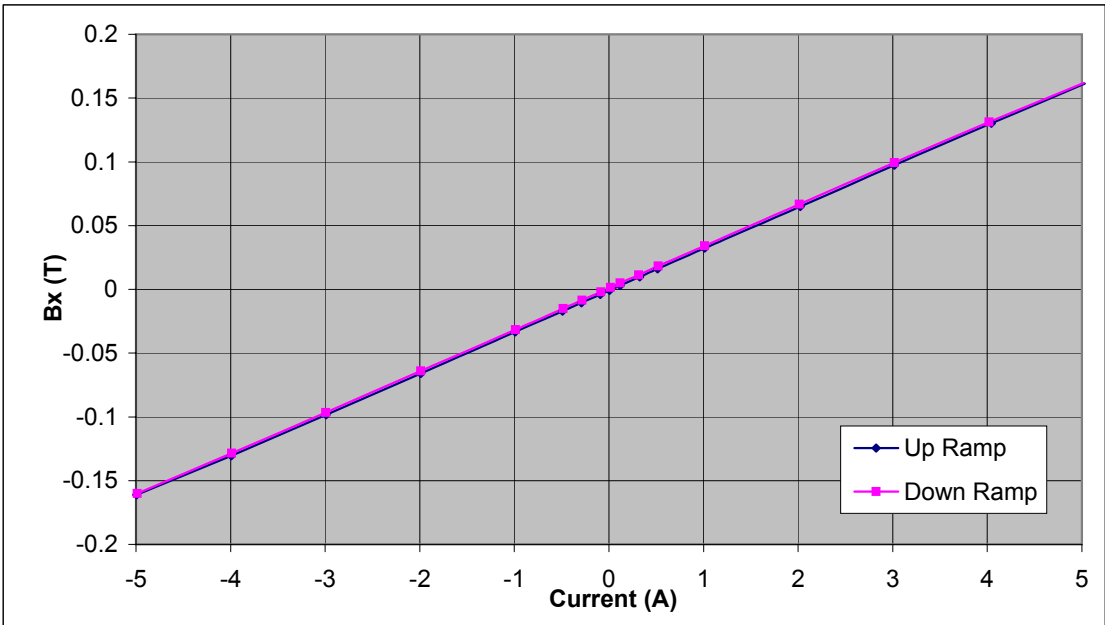
GMW ASSOCIATES
Electromagnet Hysteresis Plot

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/16/2005
Pole Face:		Page:	1 of 2
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	-20A~+20A		



GMW ASSOCIATES
Electromagnet Hysteresis Plot

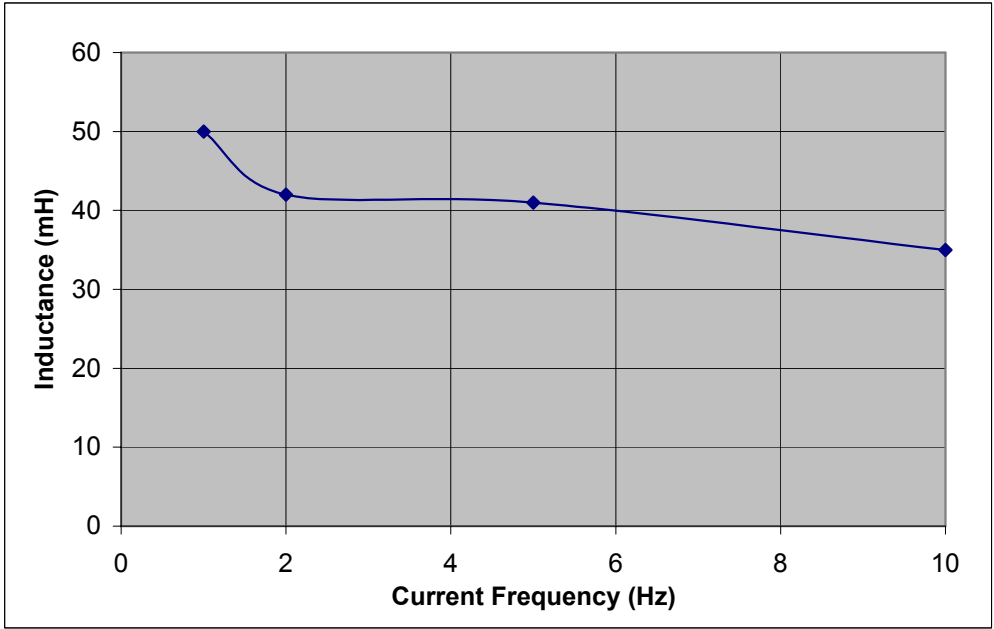
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Serial No:	15	Date:	12/16/2005
Pole Face:		Page:	2 of 2
Pole gap:	N/A		
Power Supply:	Kepeco 20-5		
PS SN:	147743 R15		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	-5A~+5A		



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5201 Electromagnet Inductance

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/16/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:			
PS SN:			
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	1Hz, 2Hz, 5Hz, 10Hz, sine		

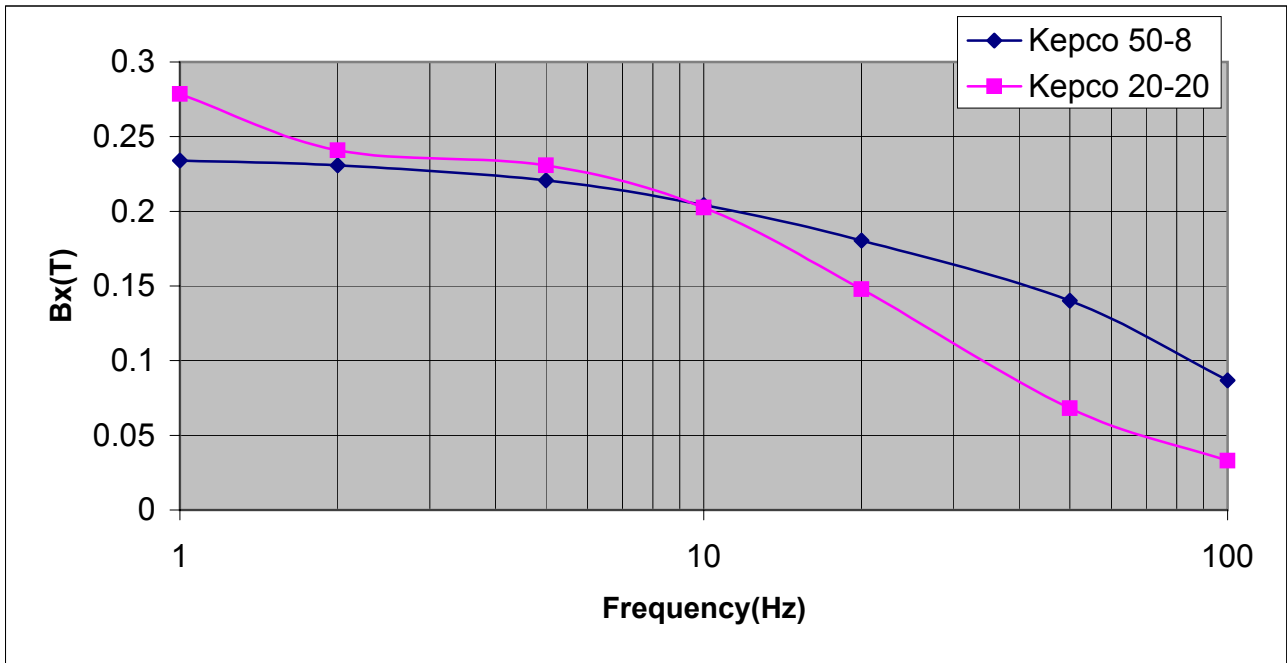
Current Frequency (Hz)	Inductance(mH)
1	50
2	42
5	41
10	35



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Electromagnet Bx vs Frequency (sine wave) Plot

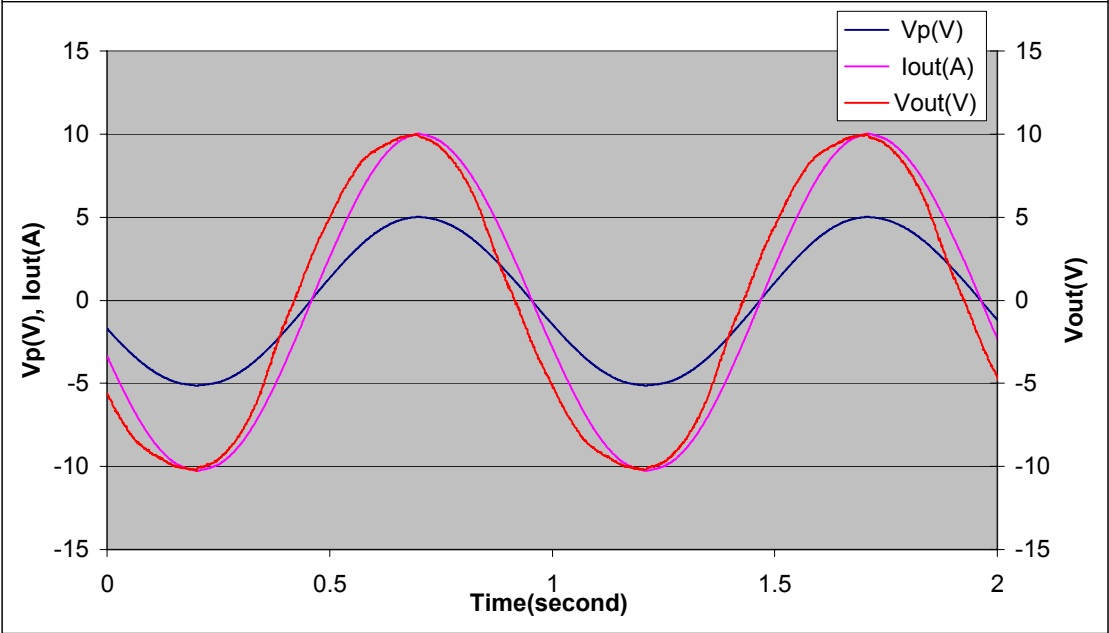
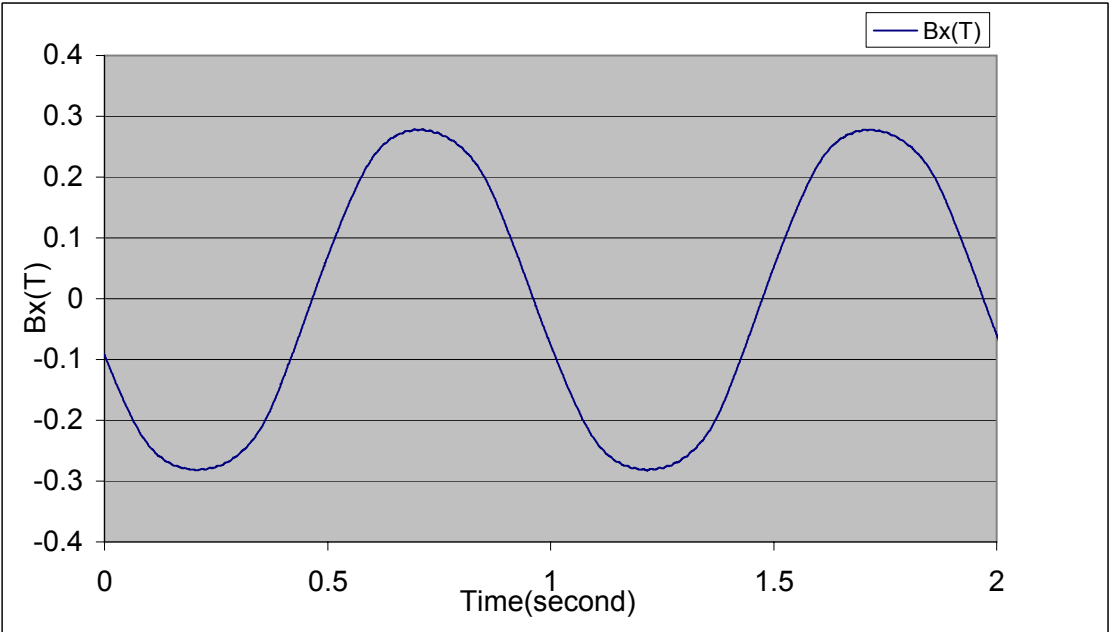
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Serial No:	15	Date:	12/16/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20	PS SN:	155399 R31
Power Supply:	Kepeco 50-8	PS SN:	154897 R24
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	Sine, before visual distortion of sine waveform		

Frequency(Hz)	Kepeco 50-8	Kepeco 20-20
1	0.2341	0.2785
2	0.2307	0.2408
5	0.2208	0.2307
10	0.2043	0.2025
20	0.1805	0.1479
50	0.1401	0.0681
100	0.0867	0.0331



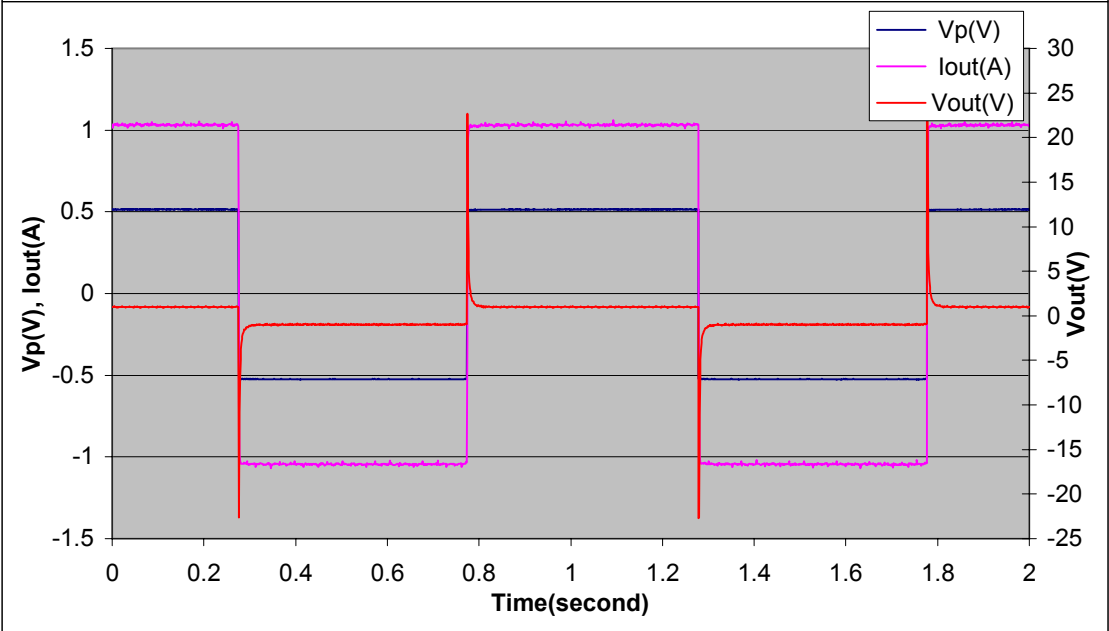
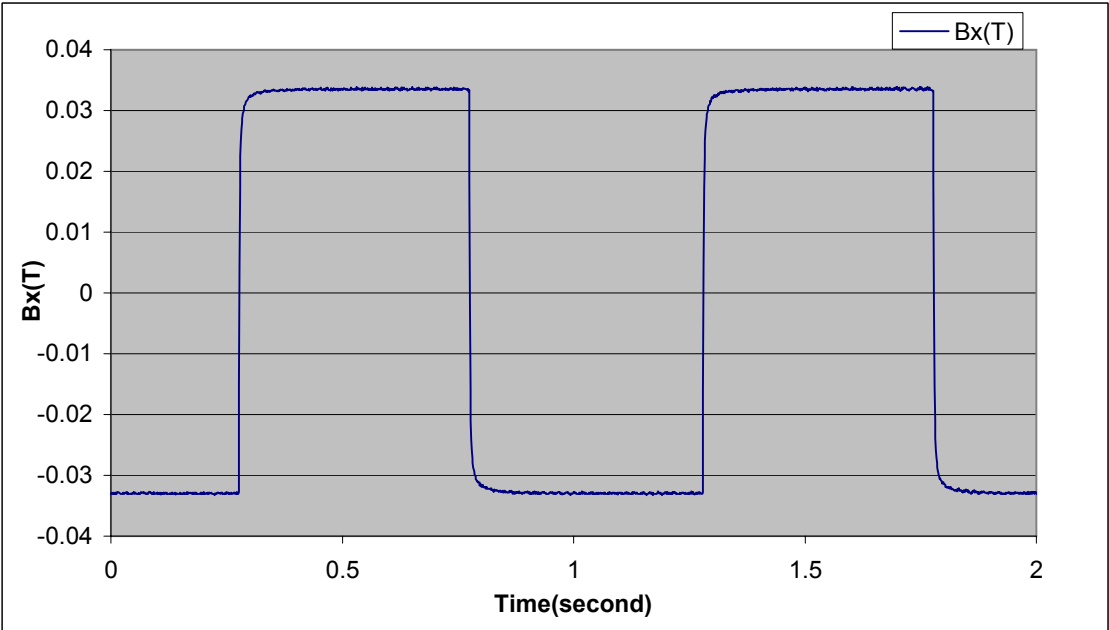
GMW ASSOCIATES
5201 Electromagnet 1Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	1Hz sine, -10A~+10A		



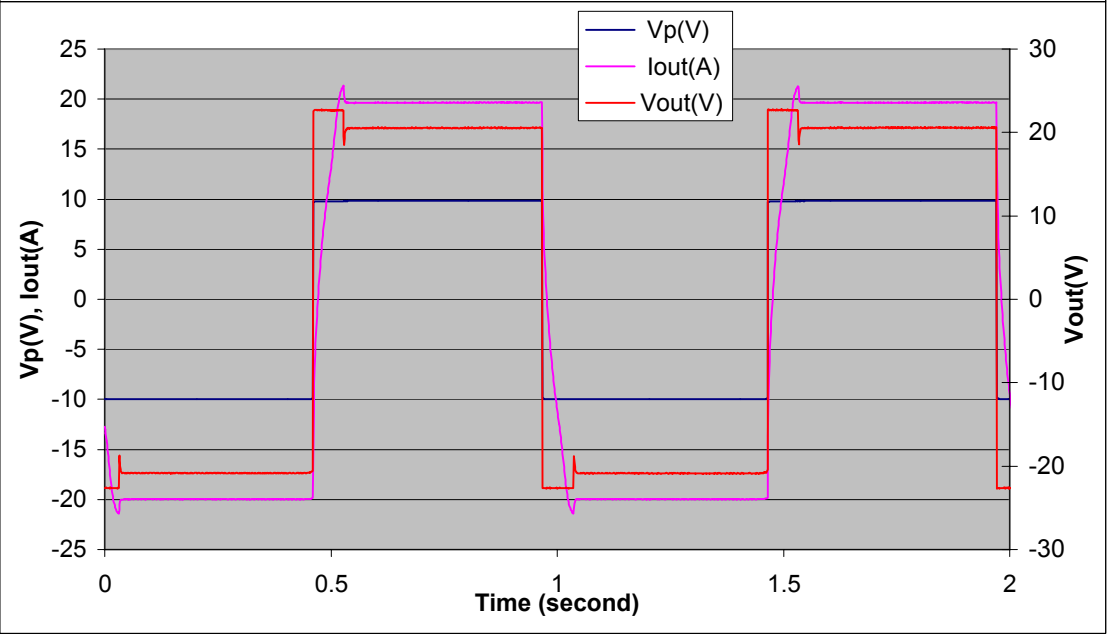
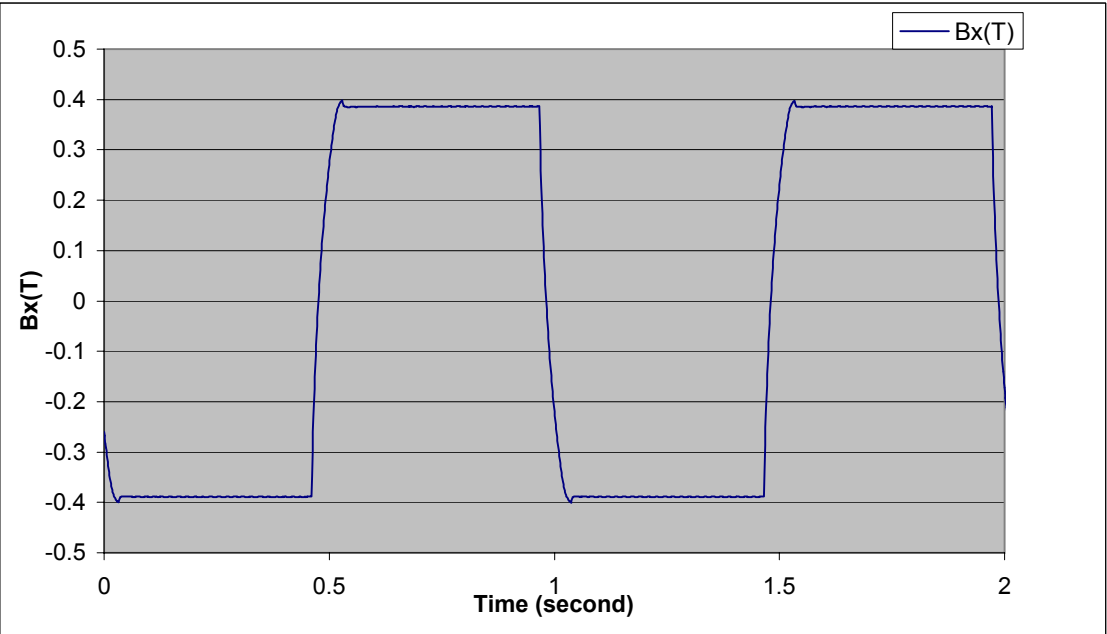
GMW ASSOCIATES
5201 Electromagnet 1Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	1Hz square, -1A~+1A		



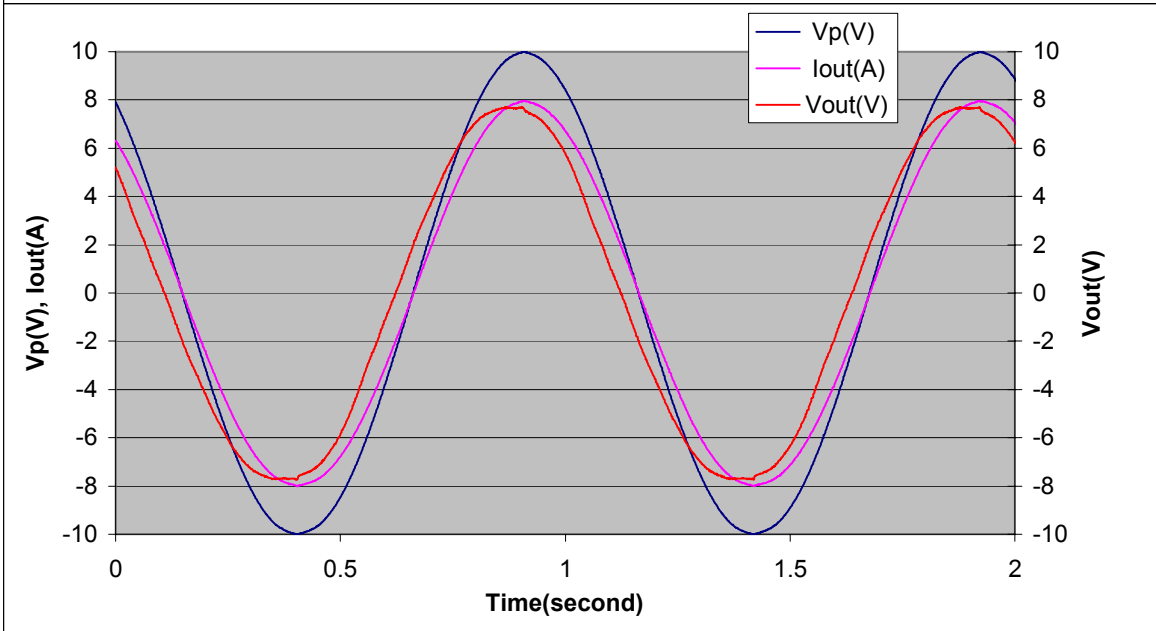
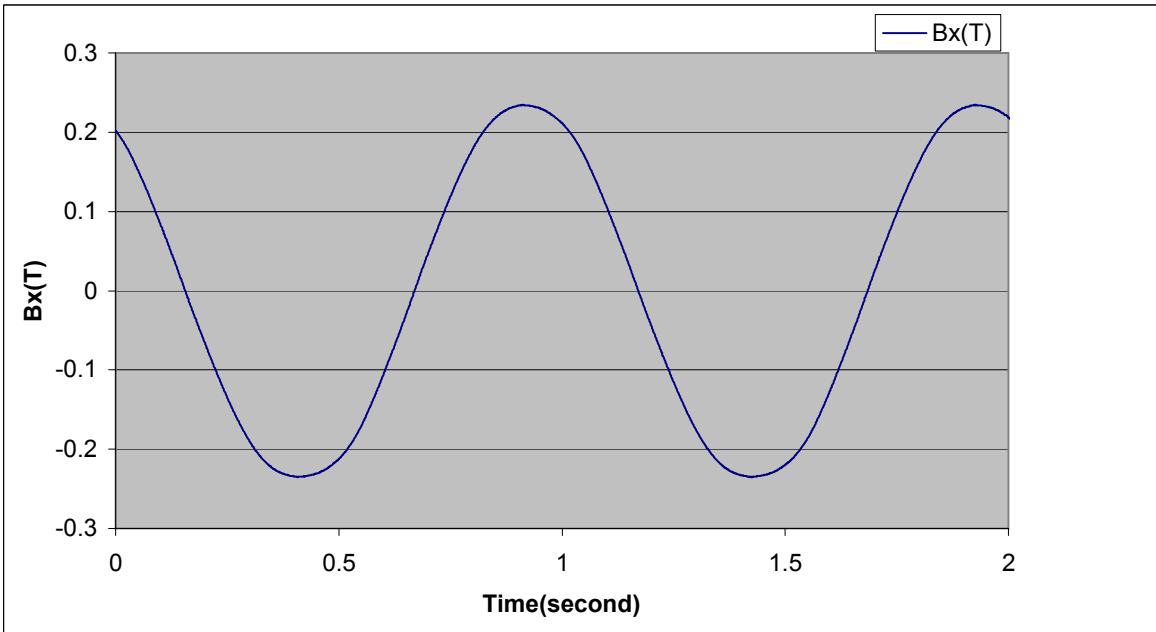
GMW ASSOCIATES
5201 Electromagnet 1Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	1Hz square, -20A~+20A		



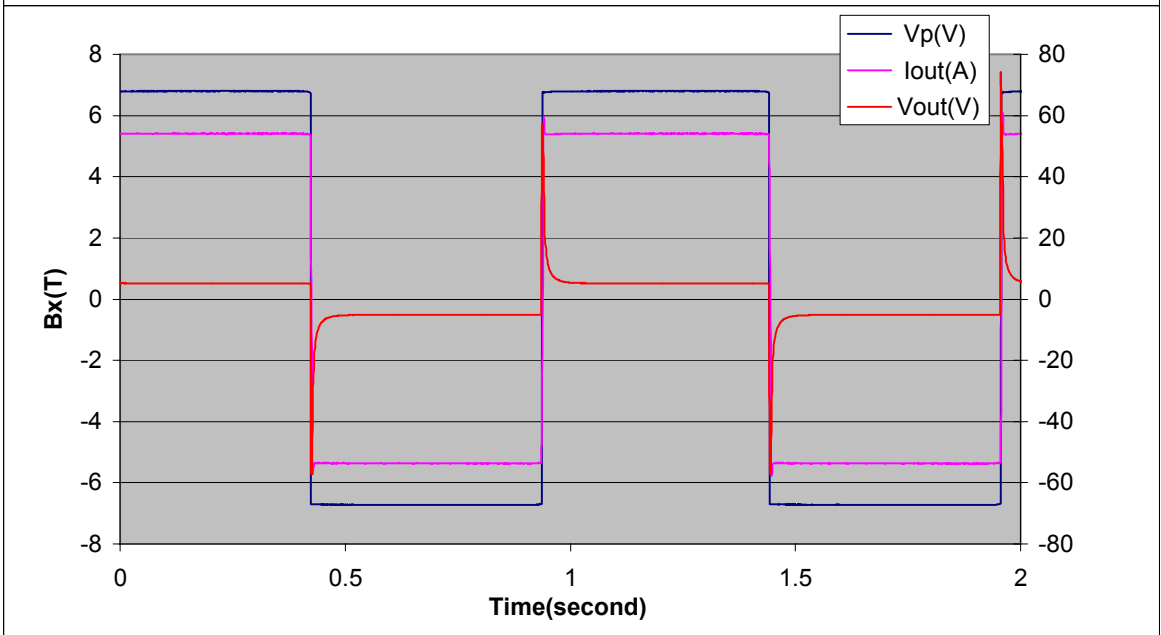
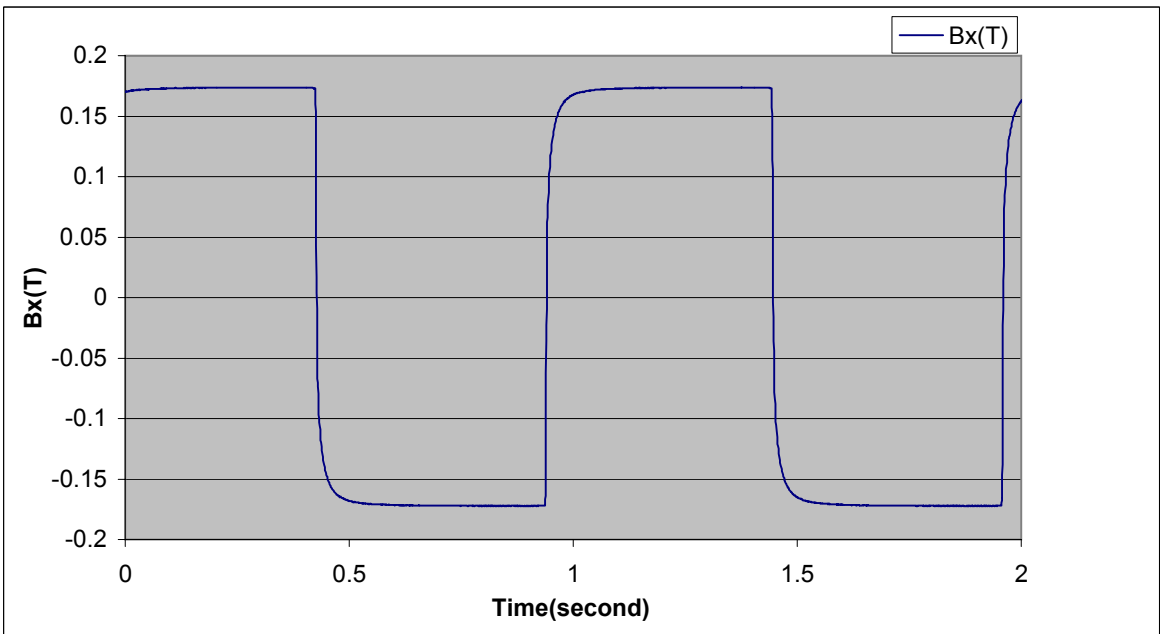
GMW ASSOCIATES
5201 Electromagnet 1Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	1Hz, sine wave, -8A~+8A		



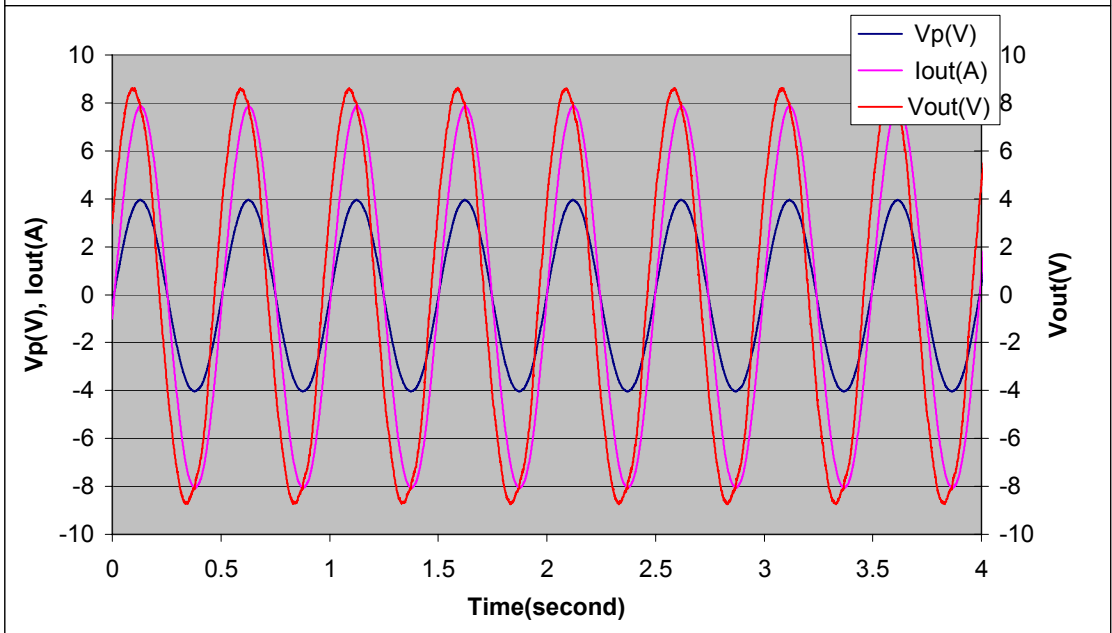
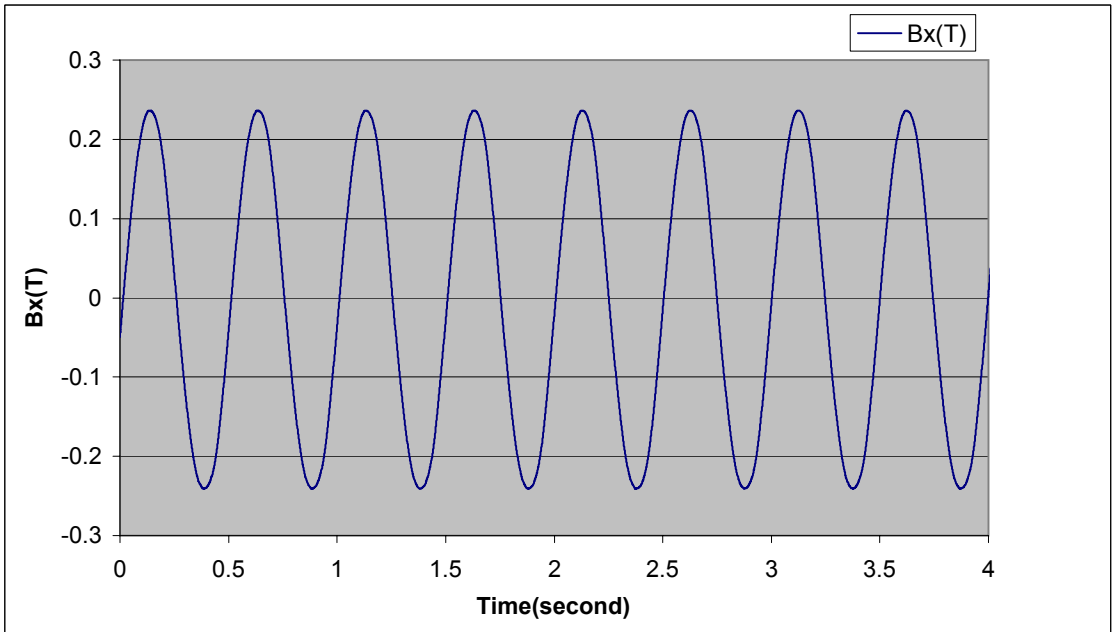
GMW ASSOCIATES
5201 Electromagnet 1Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	1Hz, square wave, -5A~+5A		



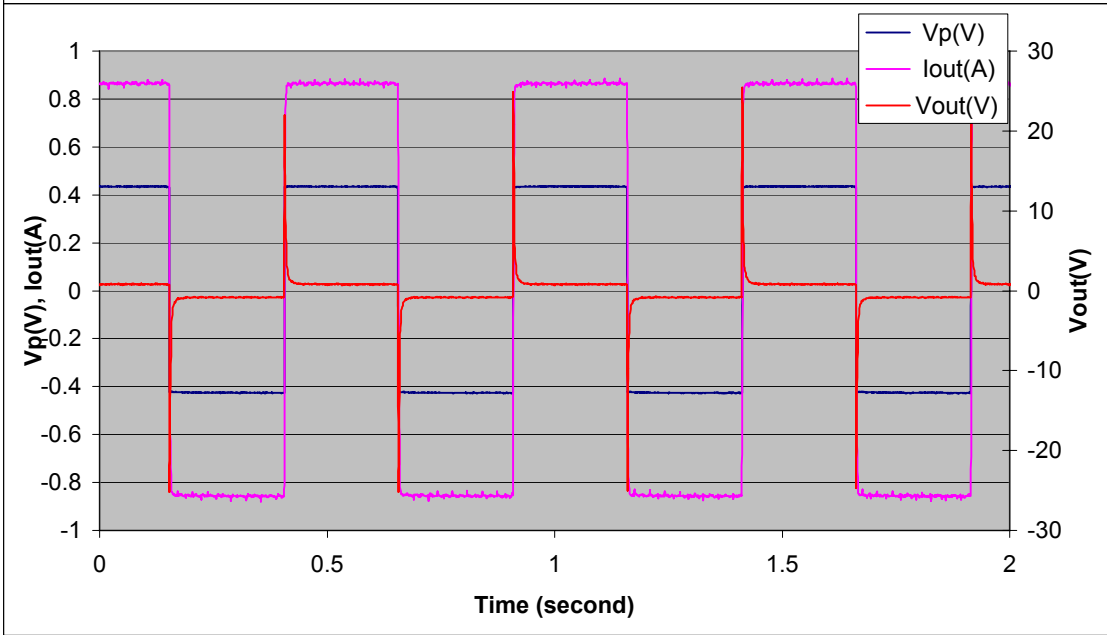
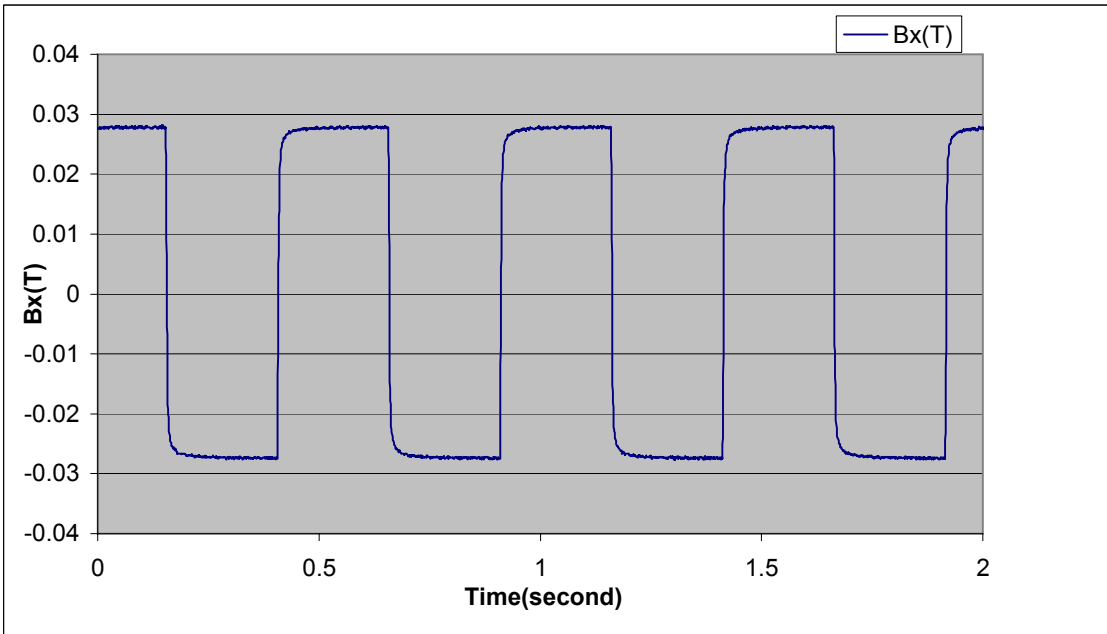
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5201 Electromagnet 2Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	2Hz sine, -8A~+8A		



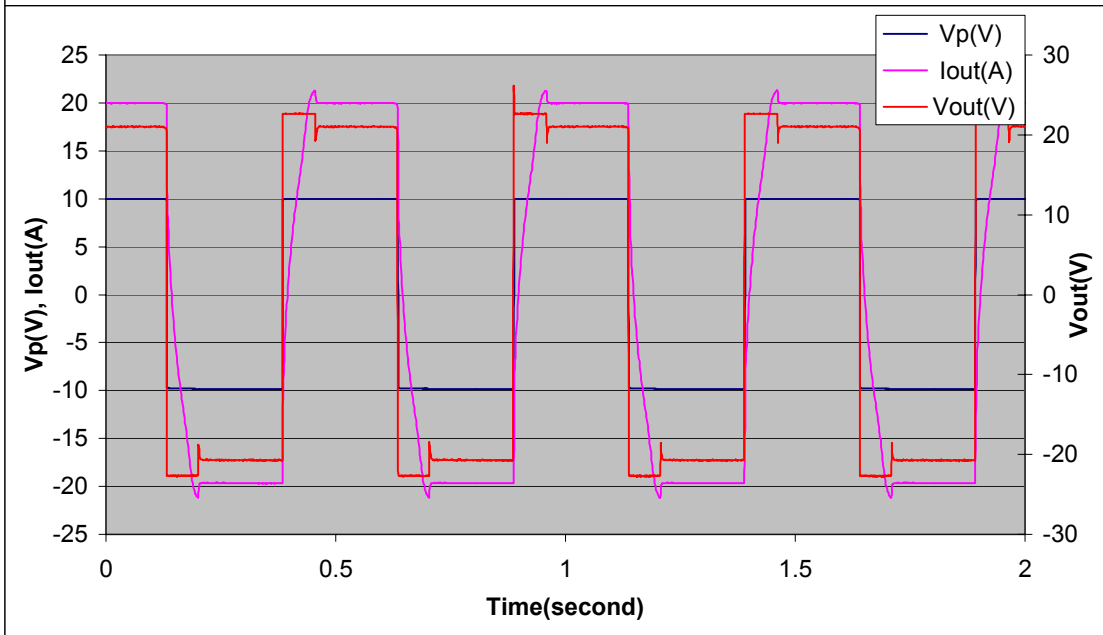
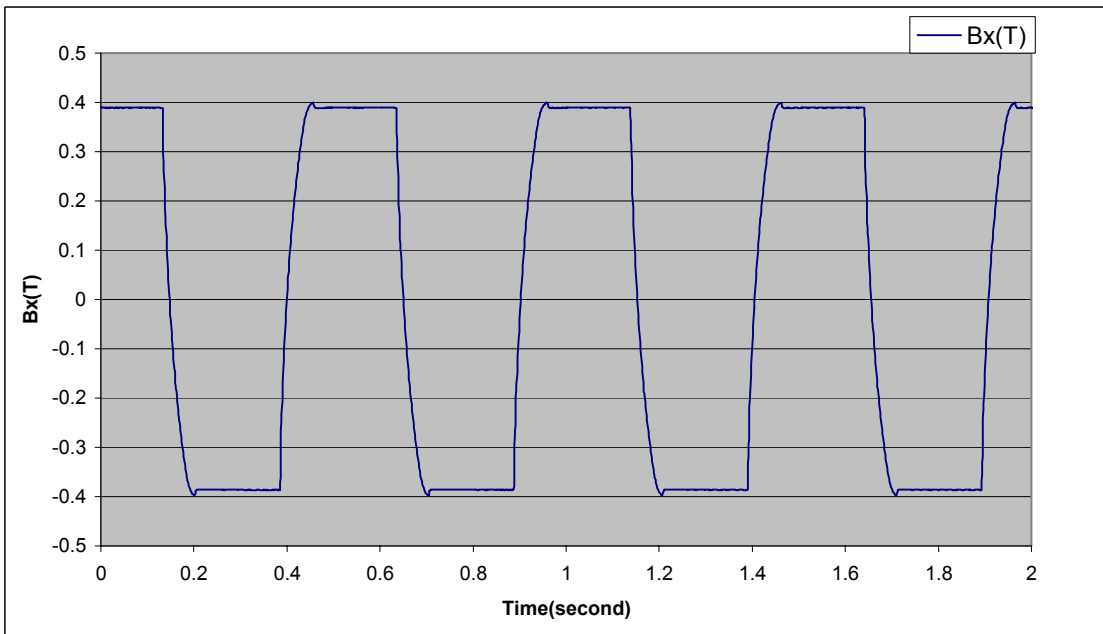
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5201 Electromagnet 2Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	2Hz square, -1A~+1A		



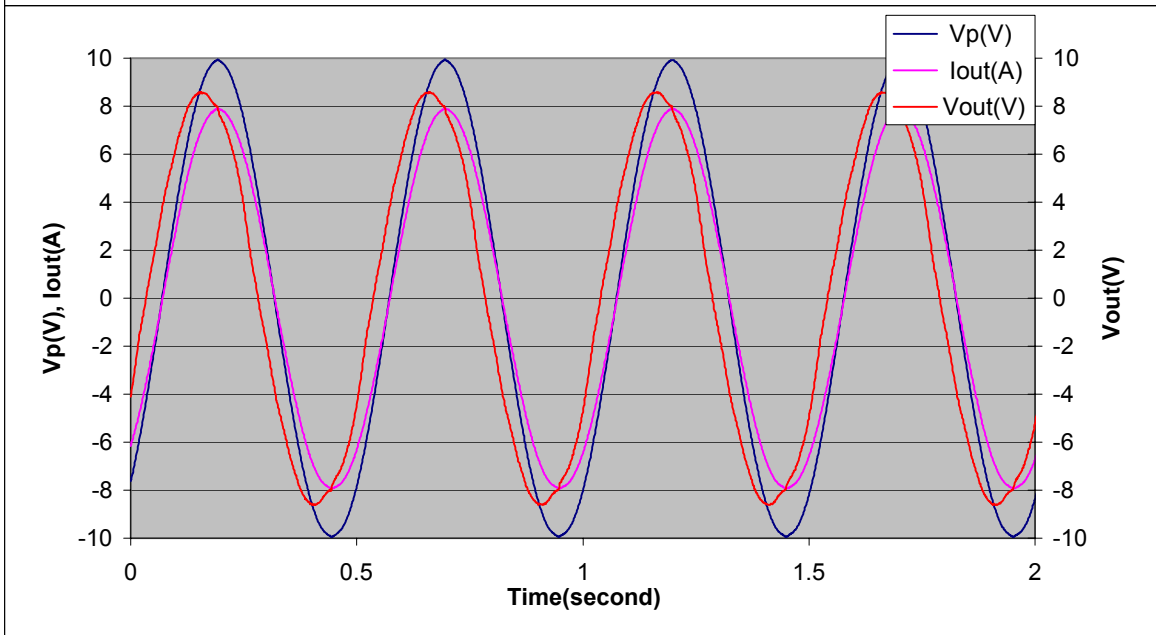
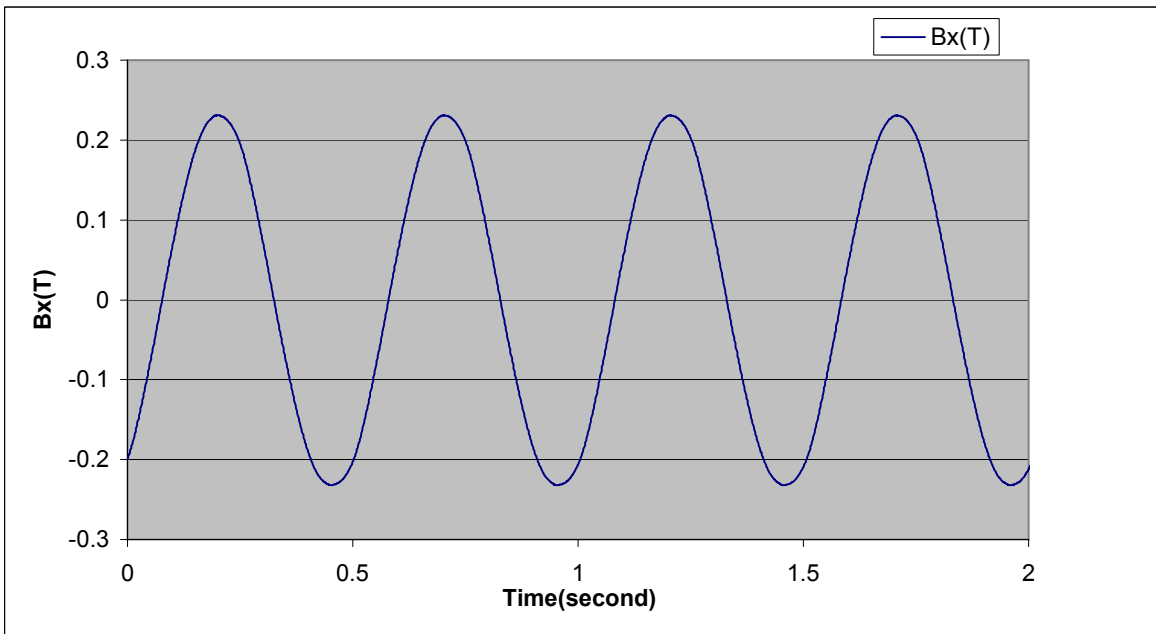
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5201 Electromagnet 2Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	2Hz square, -20A~+20A		



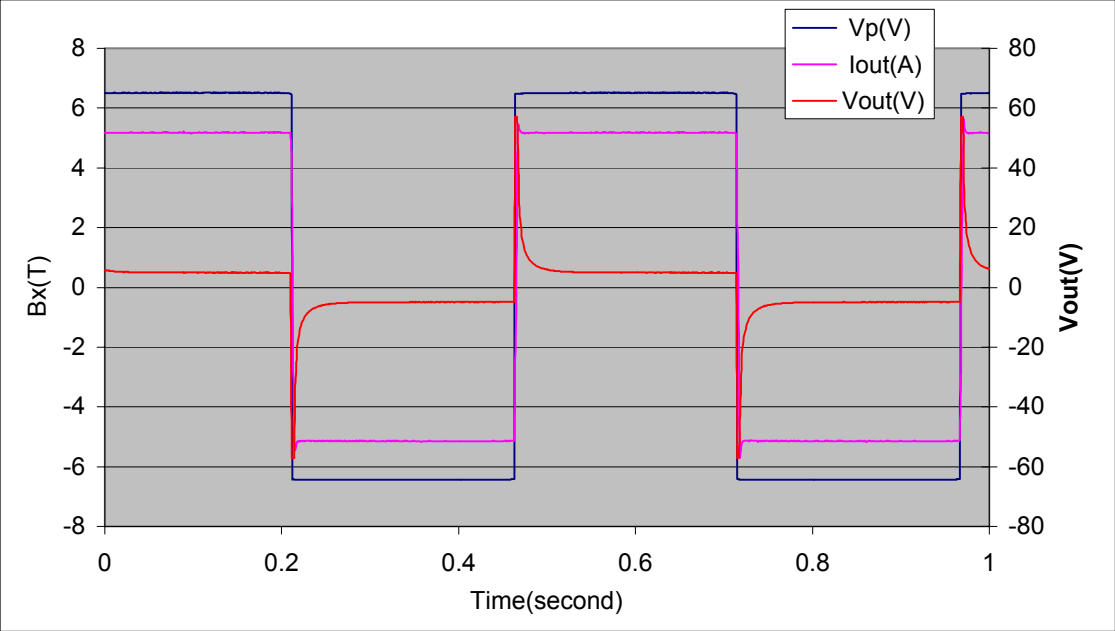
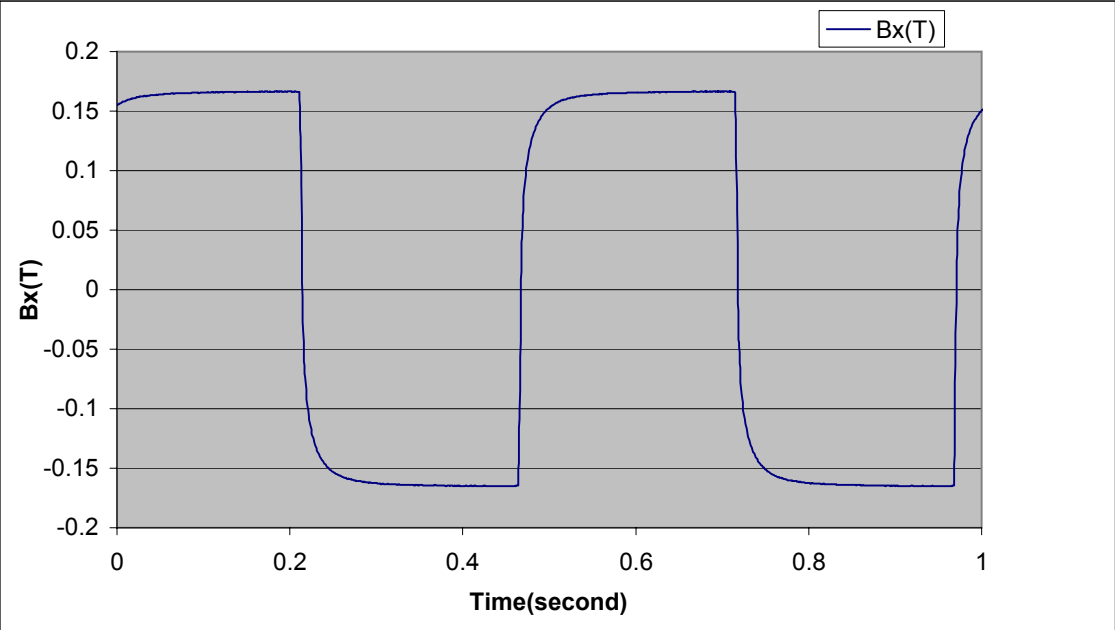
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5201 Electromagnet 2Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	2Hz, sine wave, -8A~+8A		



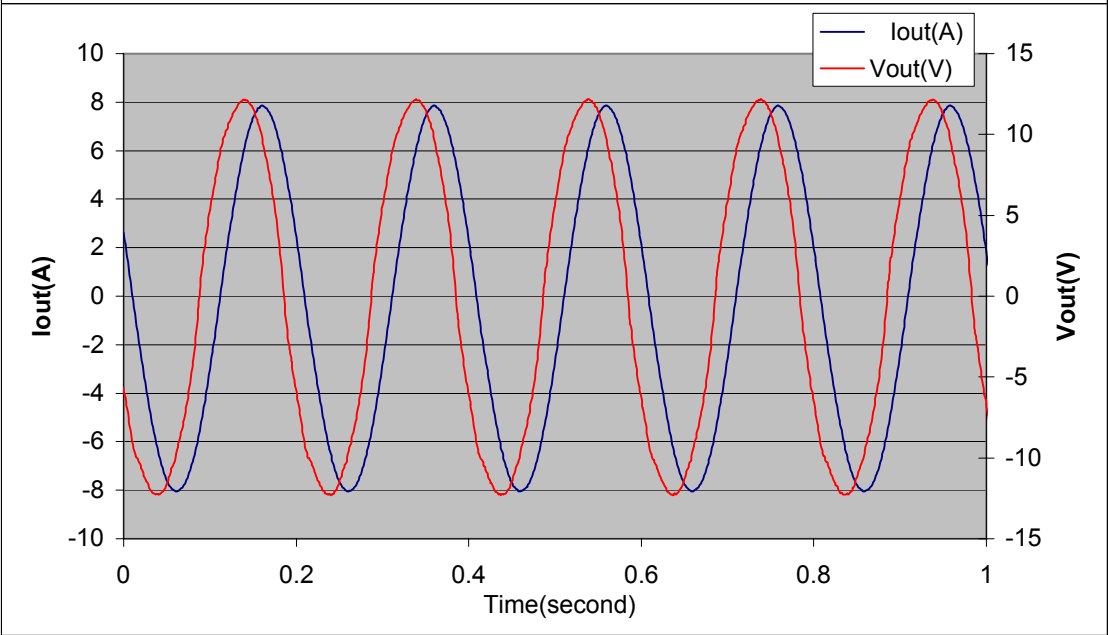
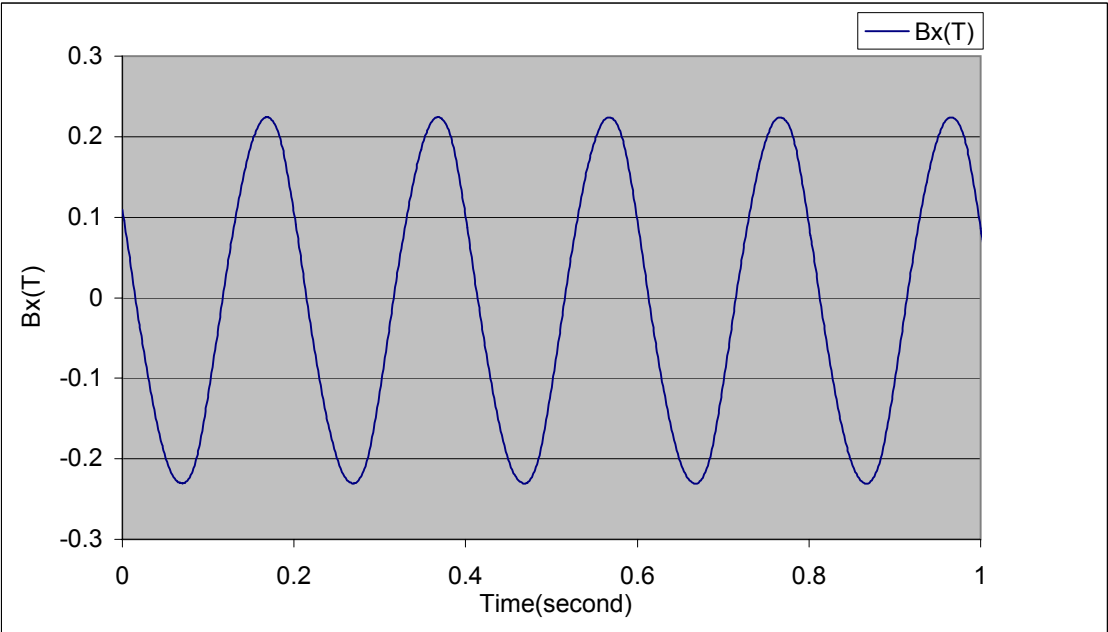
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5201 Electromagnet 2Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	2Hz, square wave, -5A~+5A		



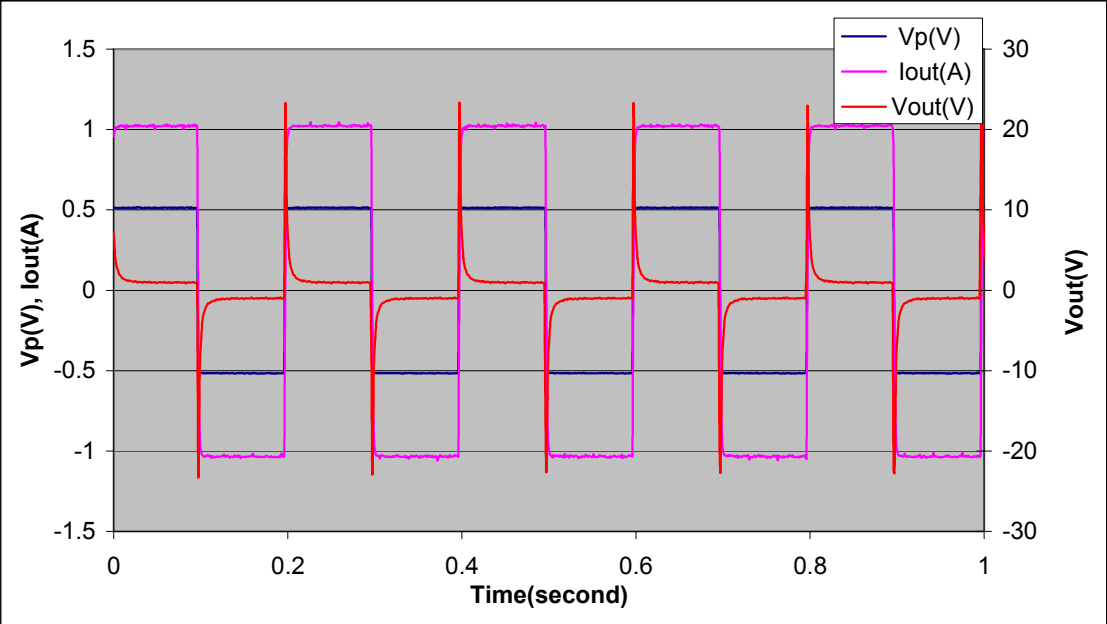
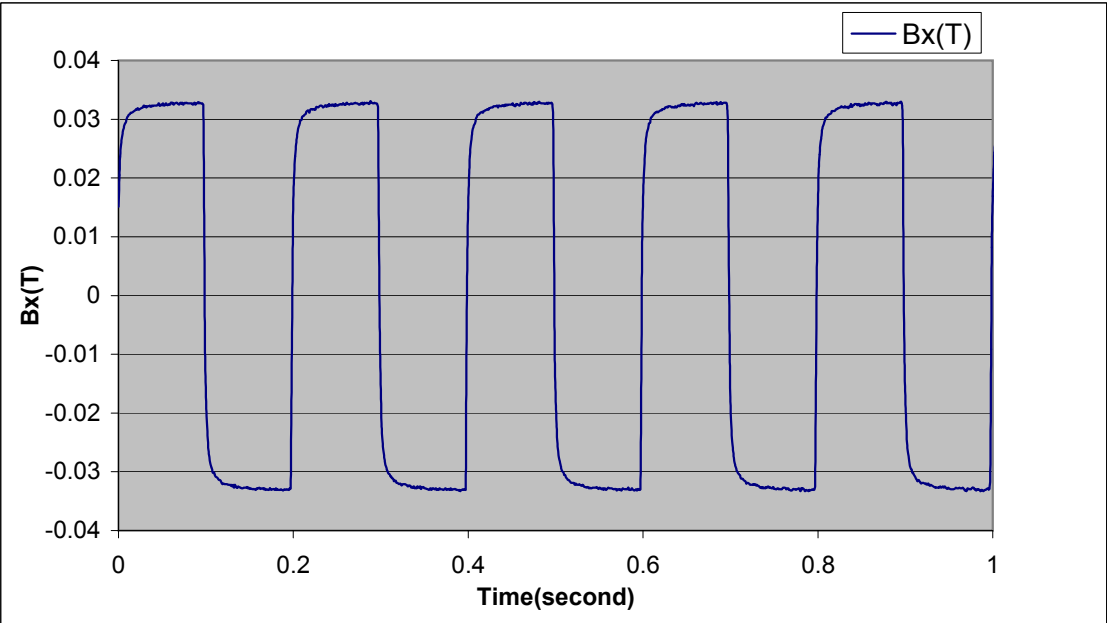
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5201 Electromagnet 5Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	5Hz sine, -8A~+8A		



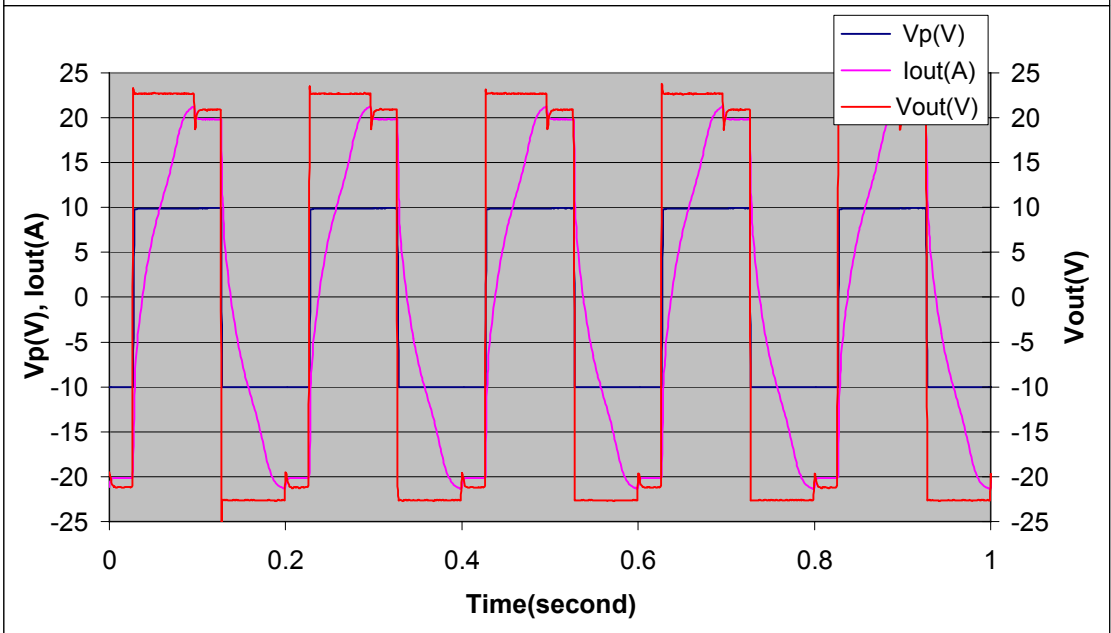
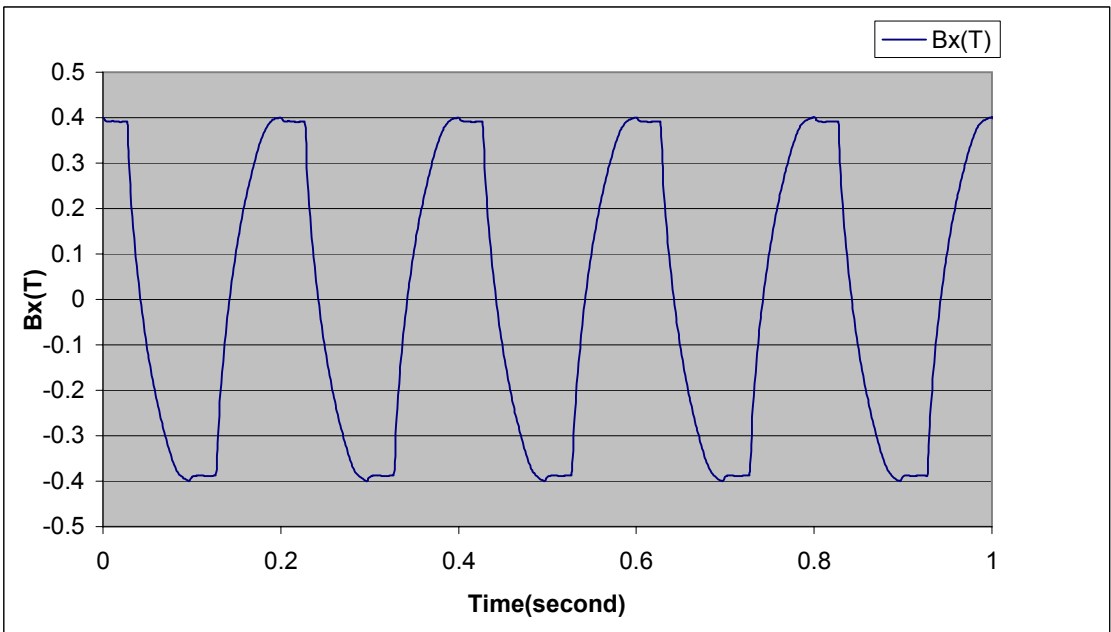
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5201 Electromagnet 5Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	5Hz square, -1A~+1A		



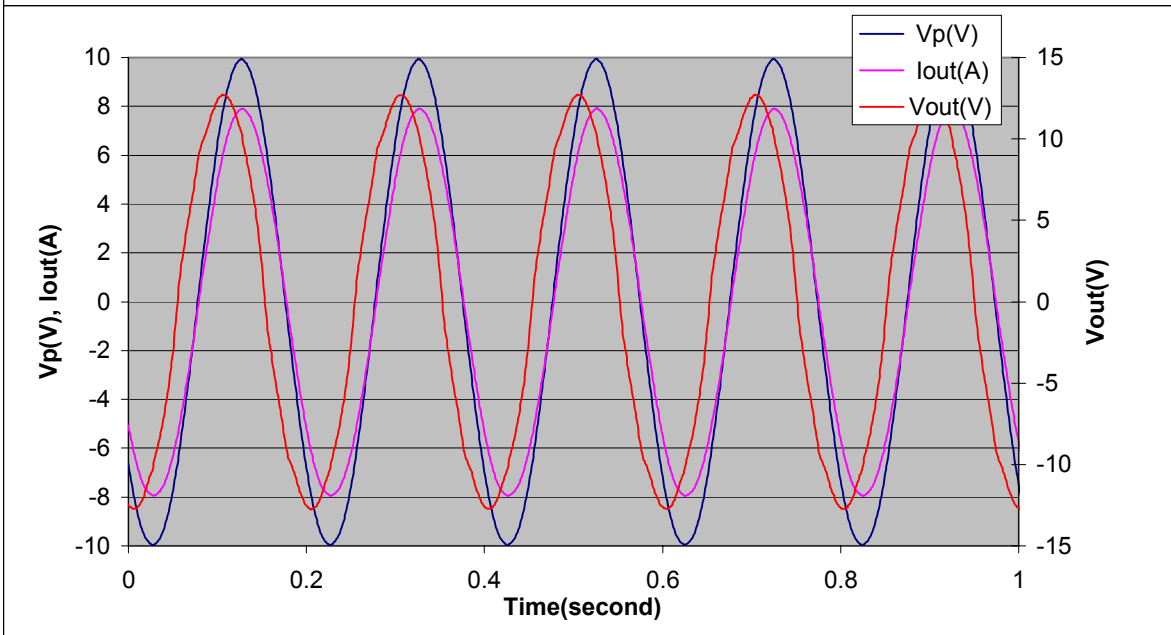
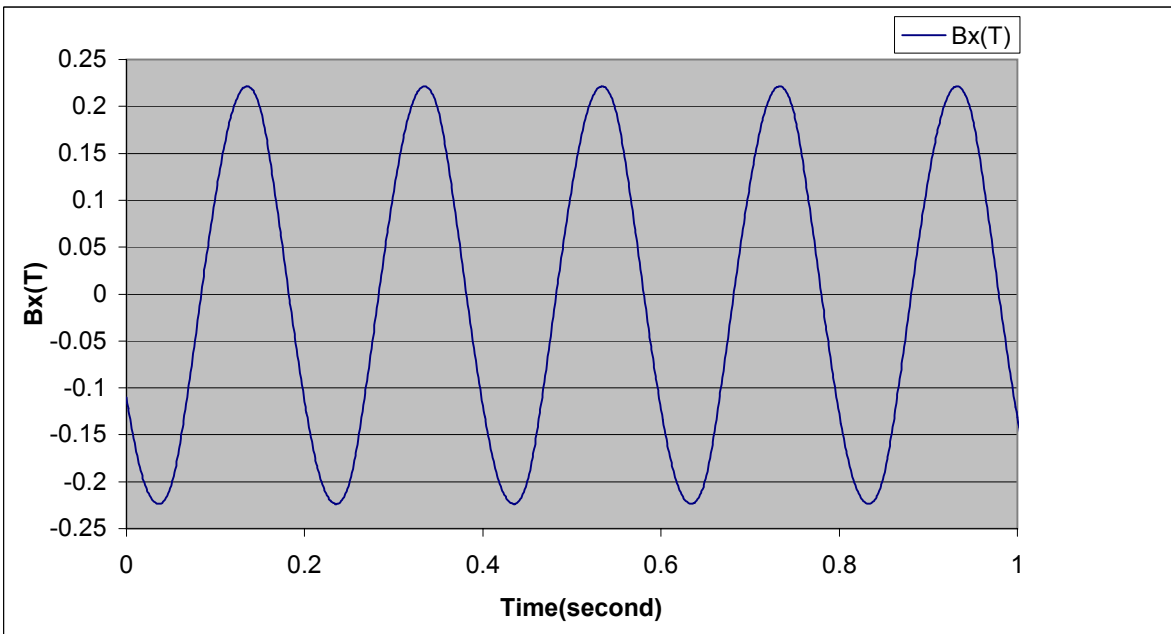
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5201 Electromagnet 5Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	5Hz square, -20A~+20A		



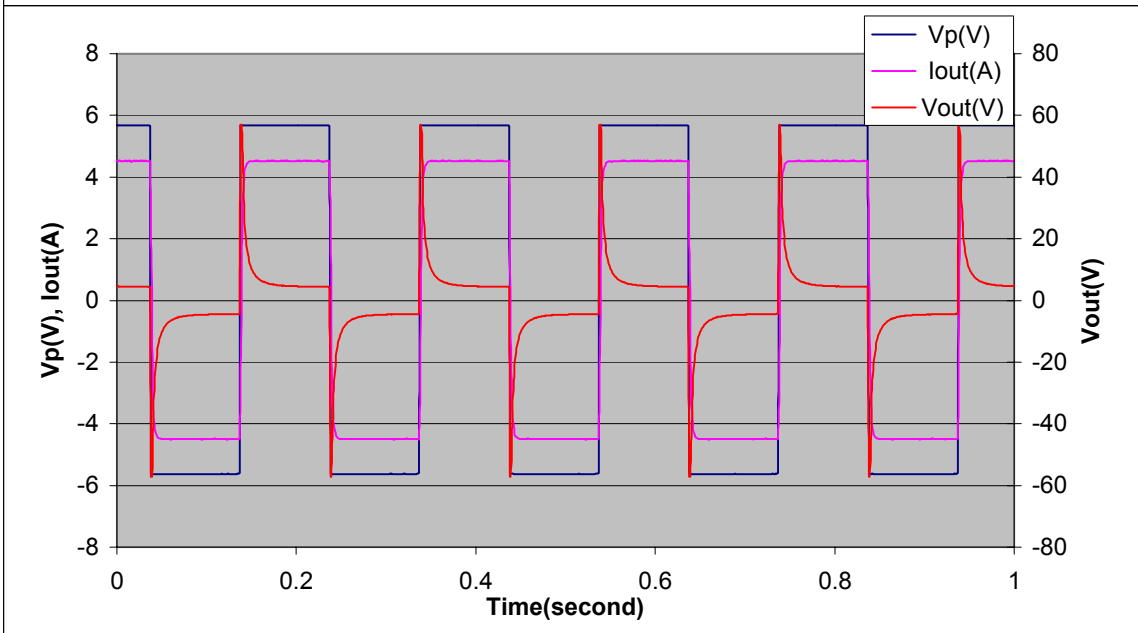
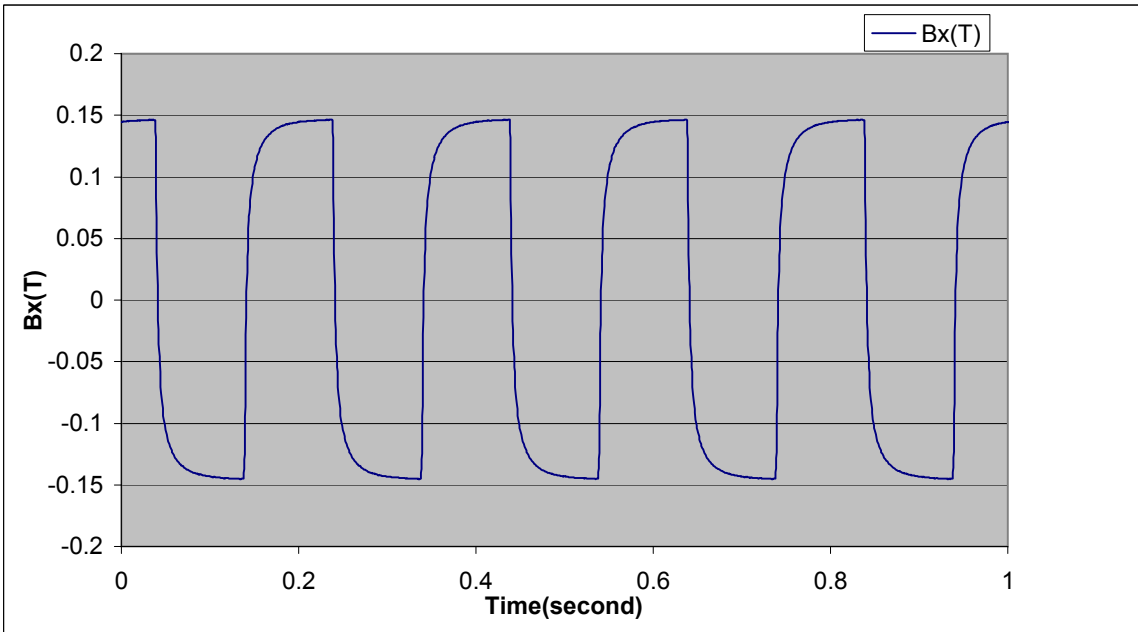
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5201 Electromagnet 5Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	5Hz, sine wave, -8A~+8A		



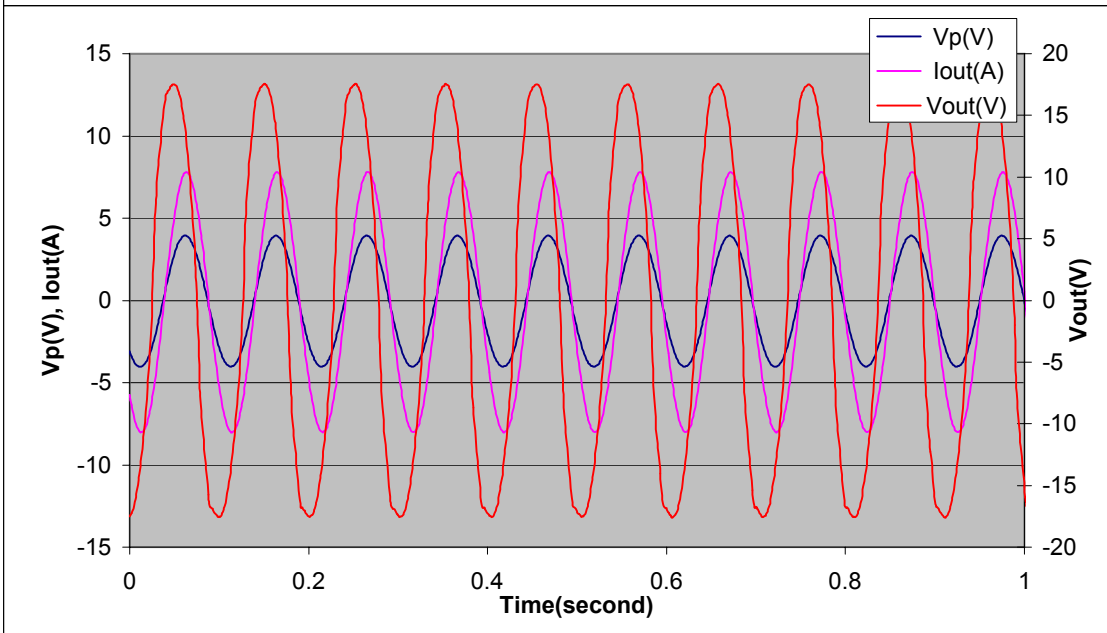
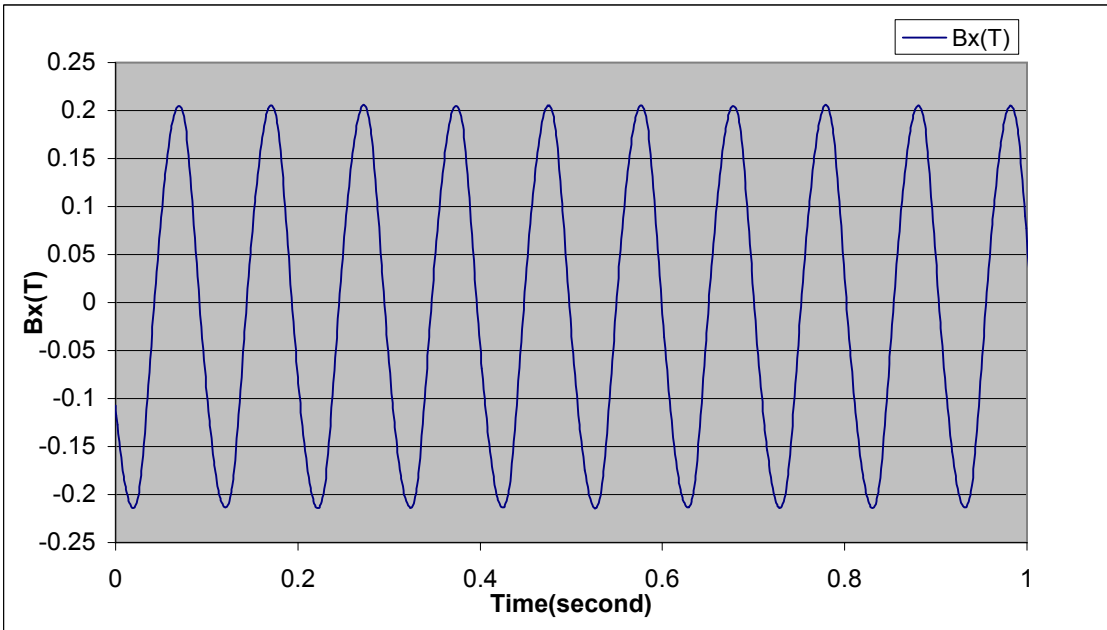
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5201 Electromagnet 5Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	5Hz, square wave, -5A~+5A		



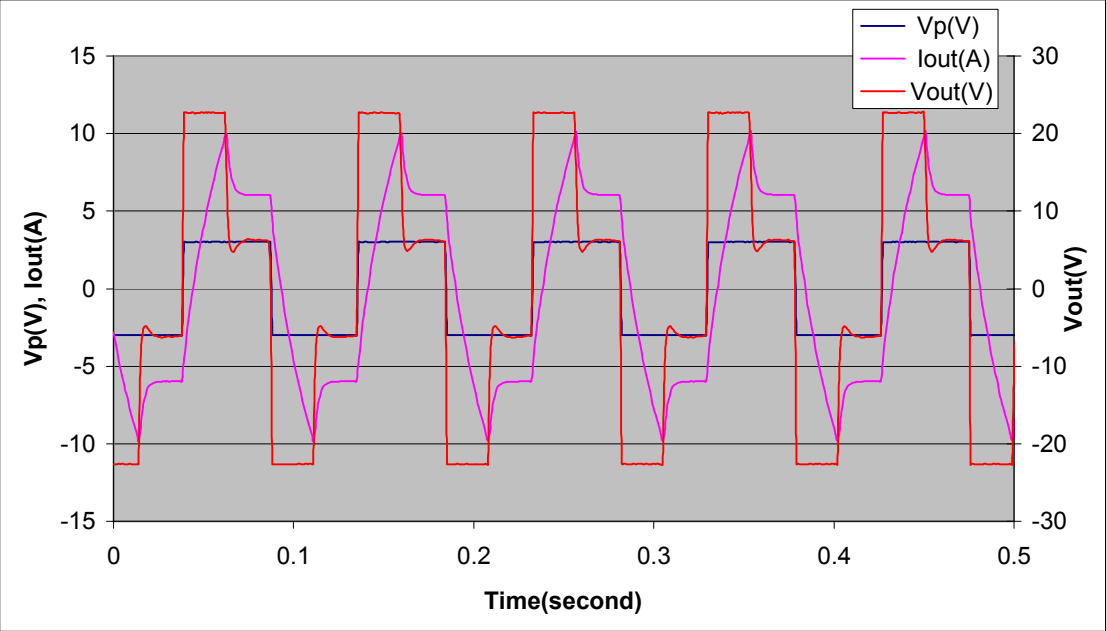
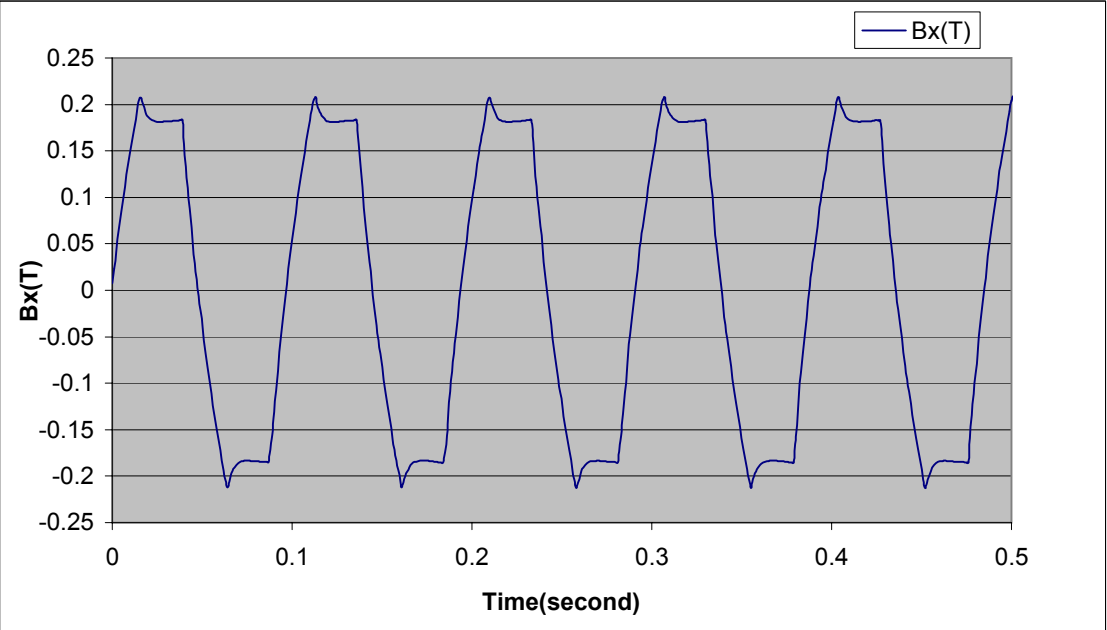
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5201 Electromagnet 10Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	10Hz sine, -8A~+8A		



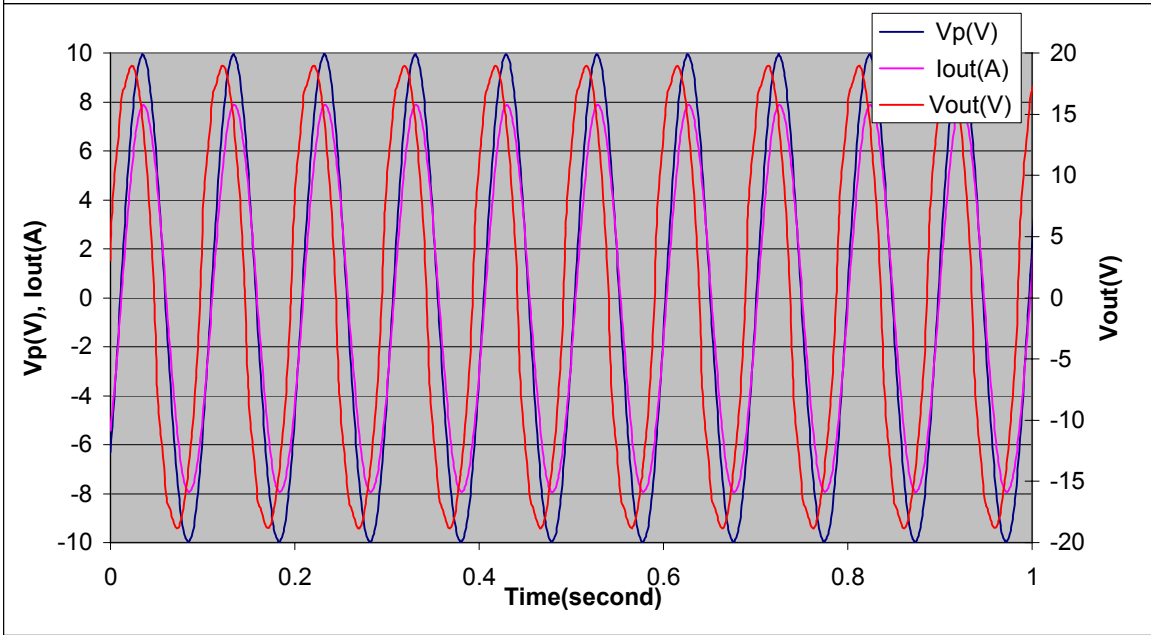
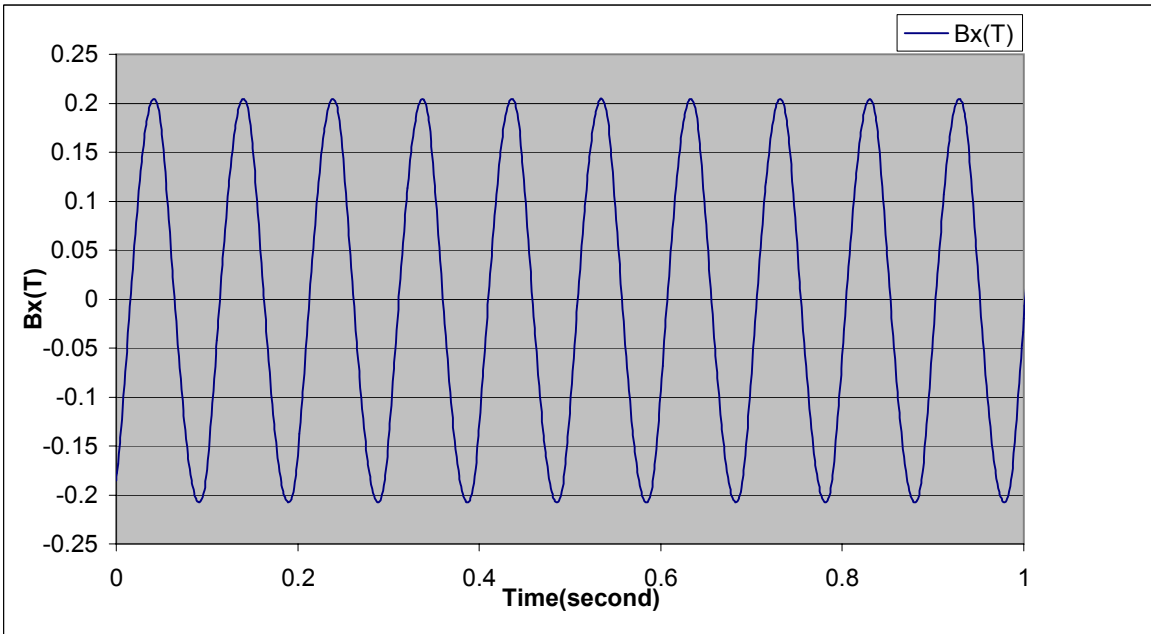
GMW ASSOCIATES
5201 Electromagnet 10Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	10Hz square, -10A~+10A		



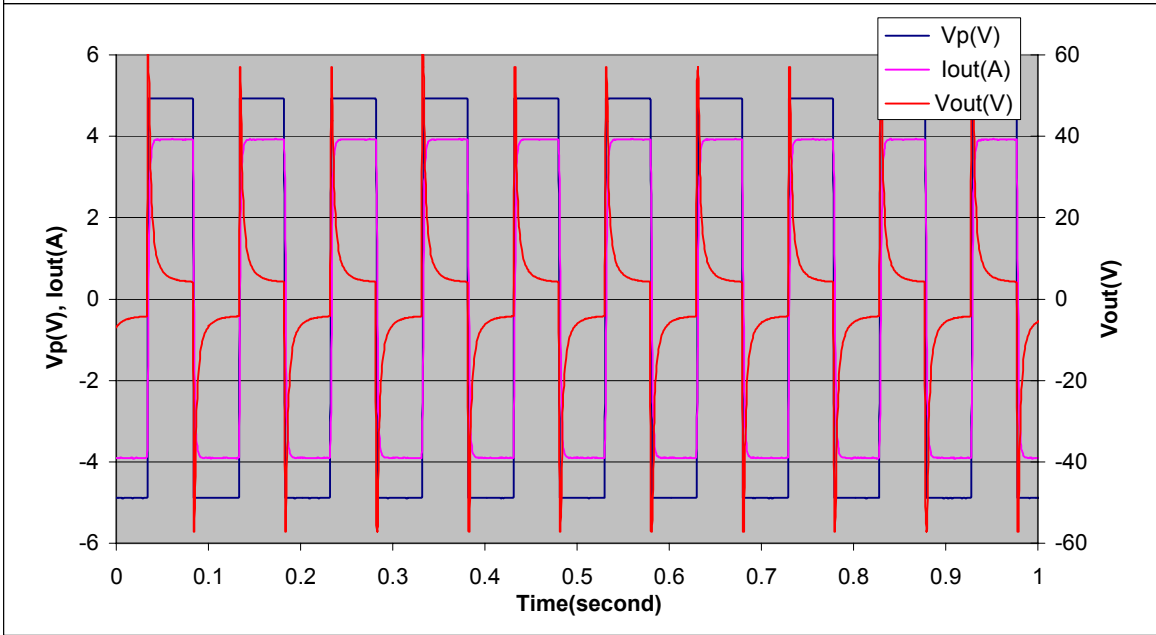
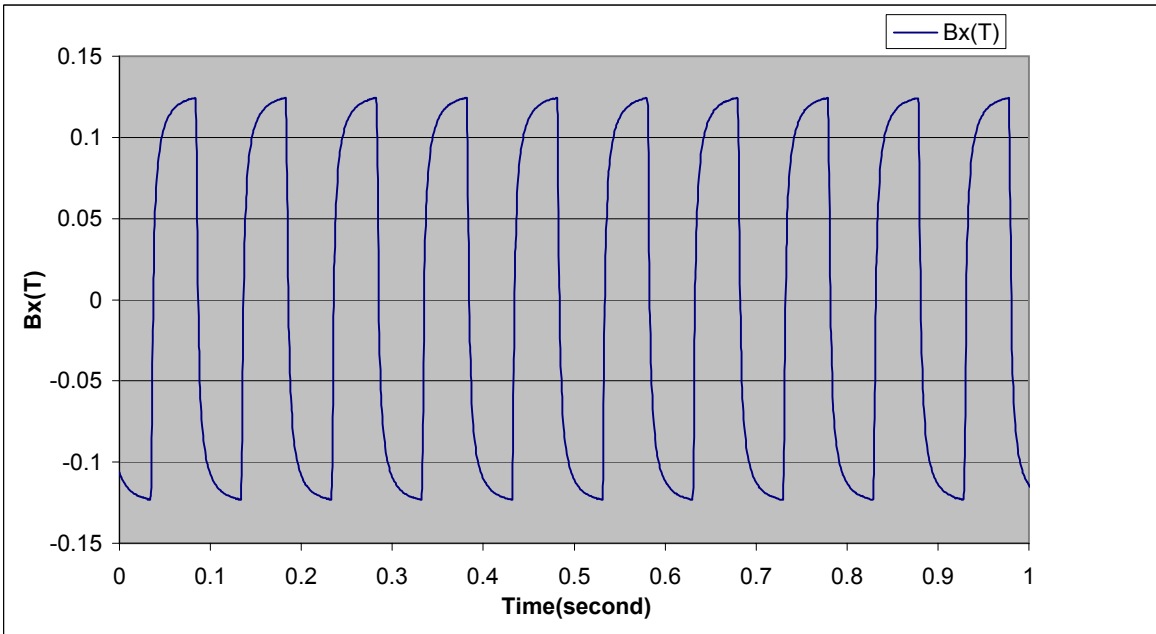
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5201 Electromagnet 10Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	10Hz, sine wave, -8A~+8A		



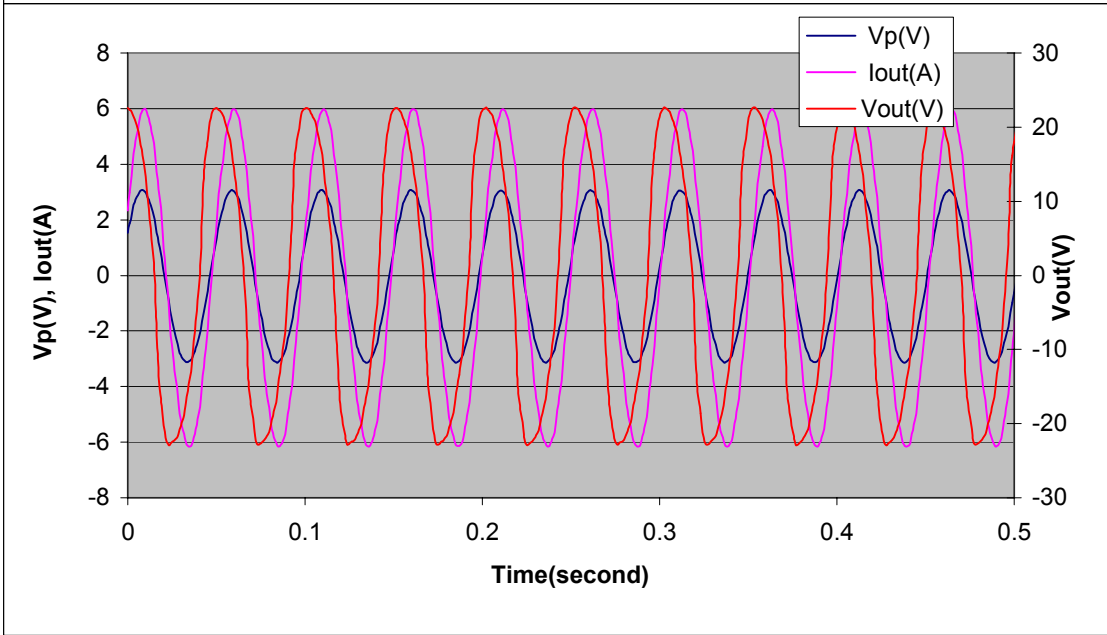
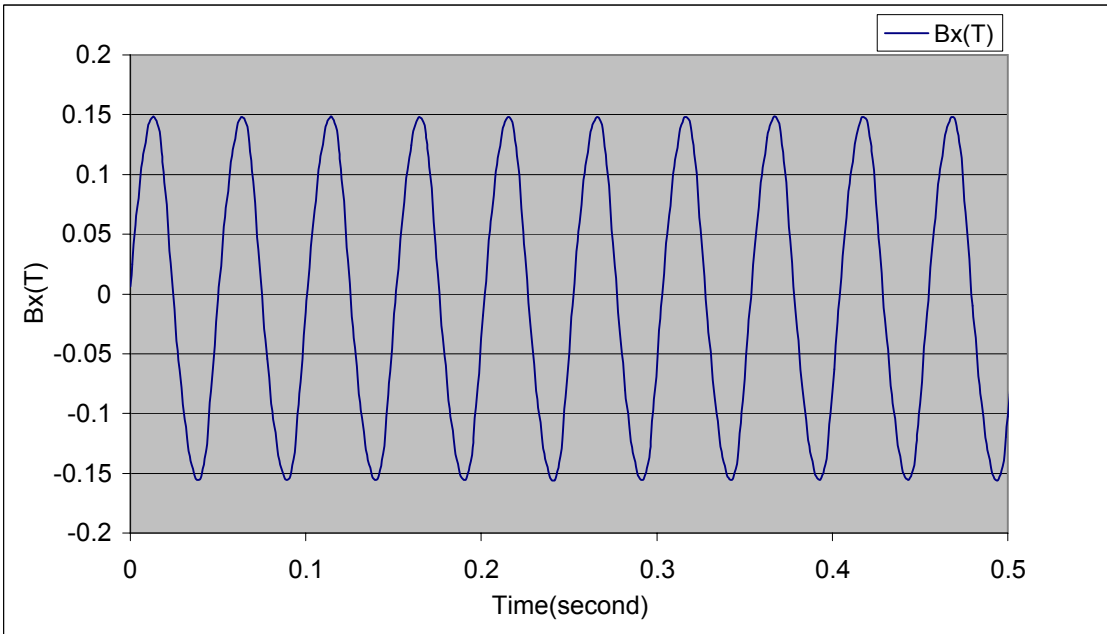
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5201 Electromagnet 10Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	10Hz, square wave, -4A~+4A		



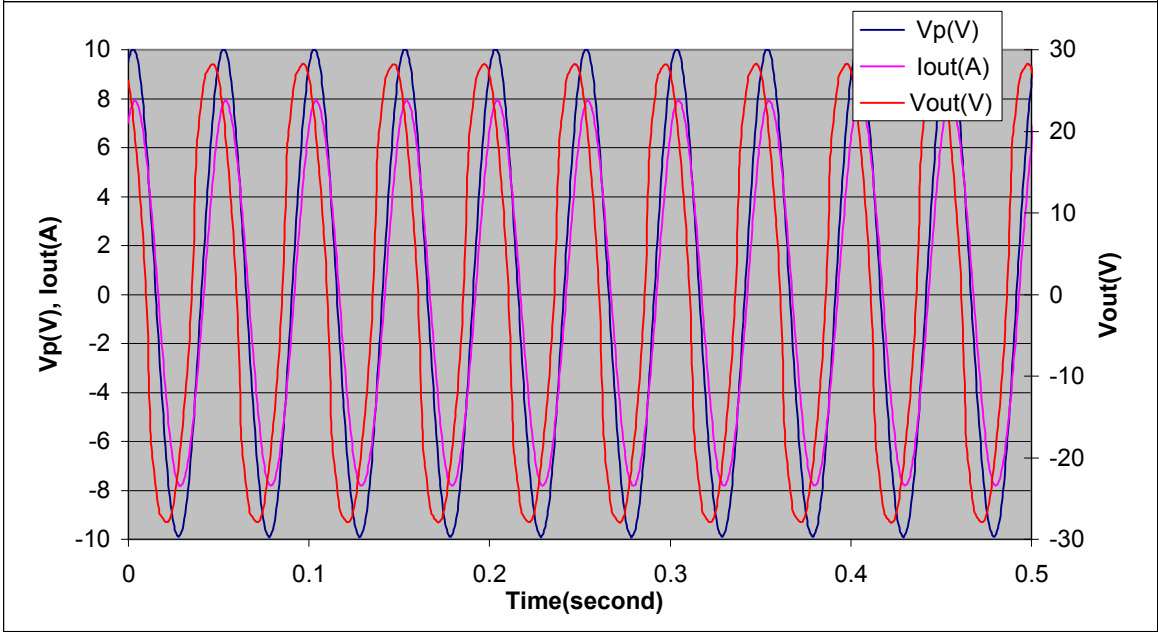
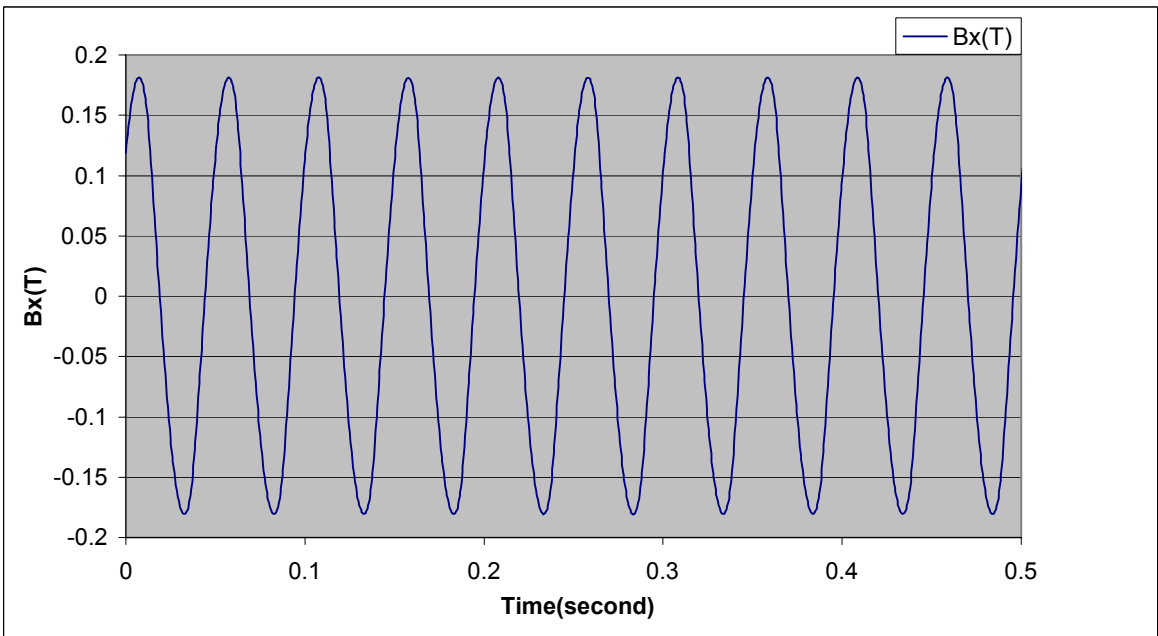
GMW ASSOCIATES
5201 Electromagnet 20Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	20Hz sine, -6A~+6A		



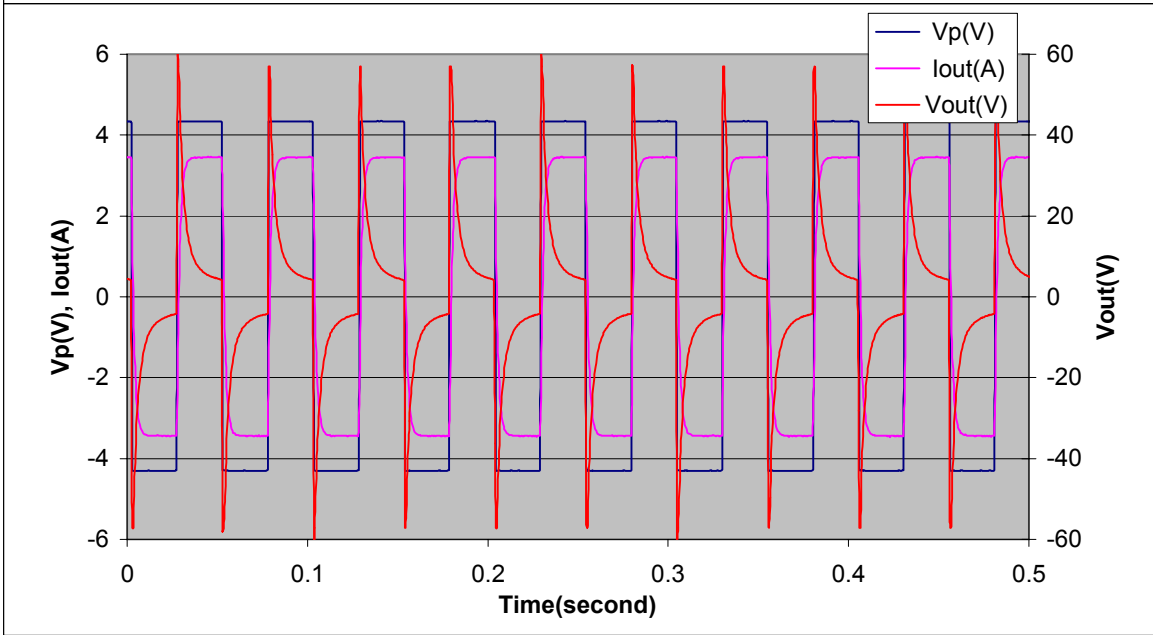
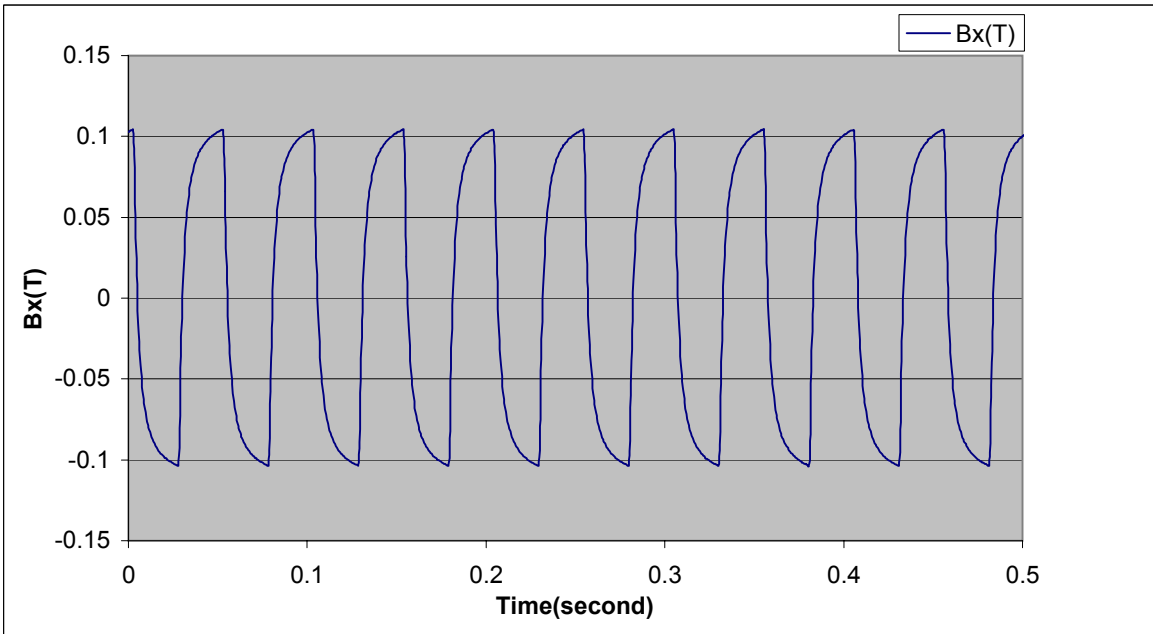
GMW ASSOCIATES
5201 Electromagnet 20Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	20Hz, sine wave, -8A~+8A		



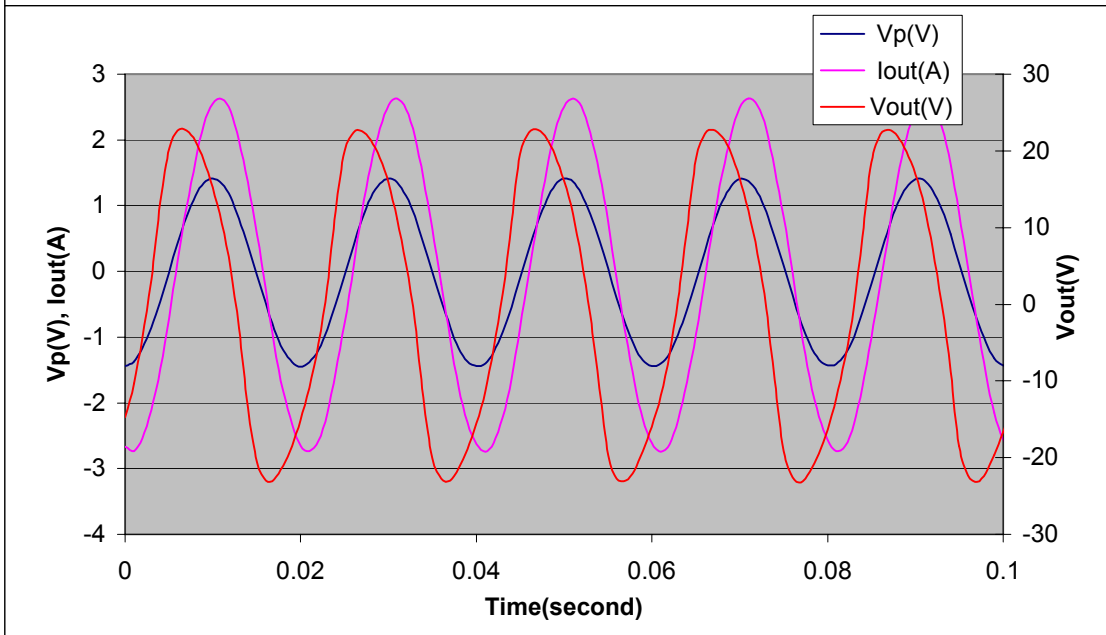
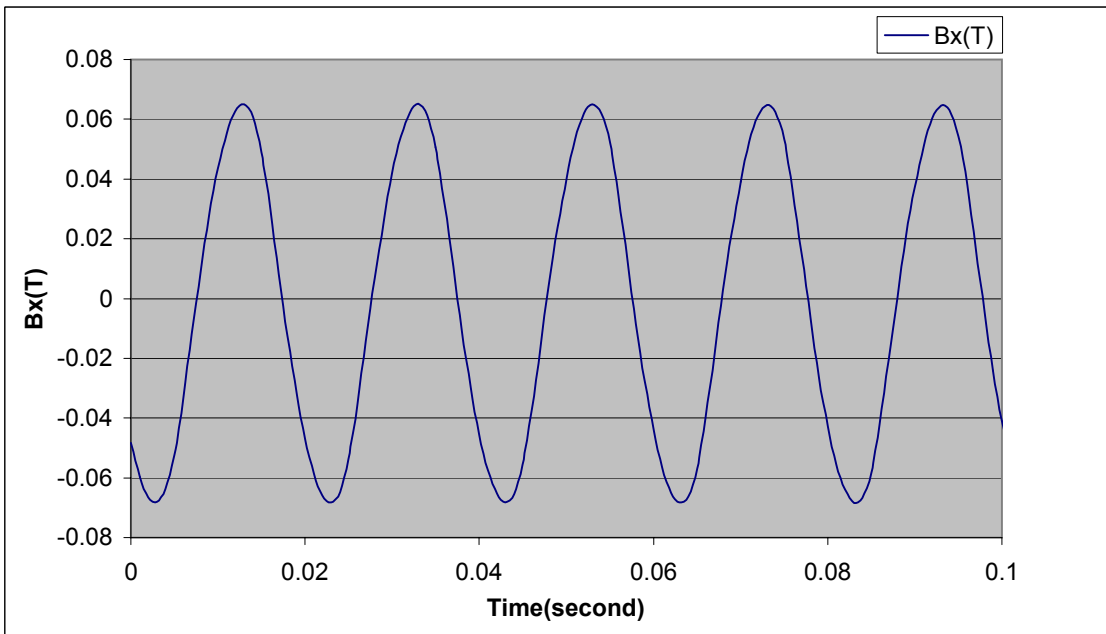
GMW ASSOCIATES
5201 Electromagnet 20Hz square wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	20Hz, square wave, -4A~+4A		



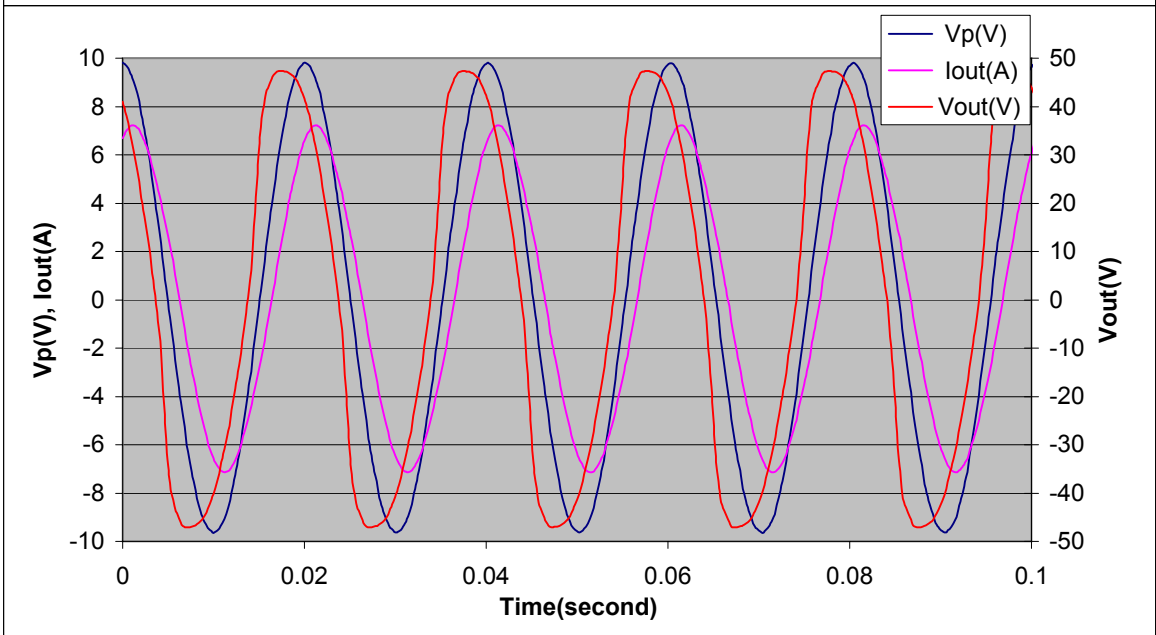
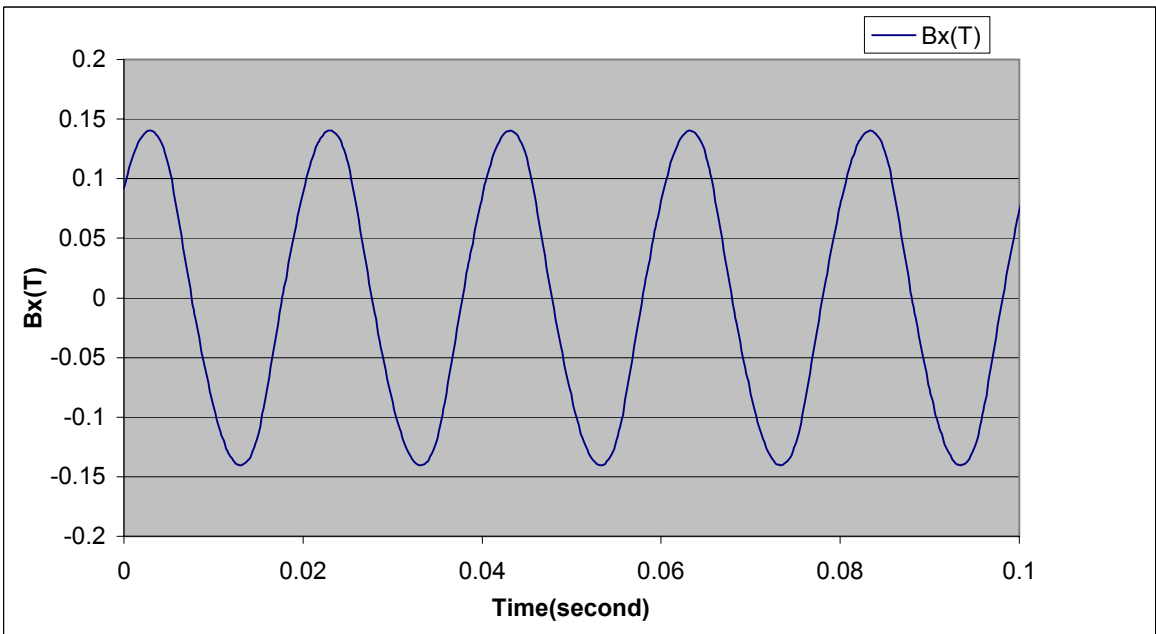
GMW ASSOCIATES
5201 Electromagnet 50Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	50Hz sine, -3A~+3A		



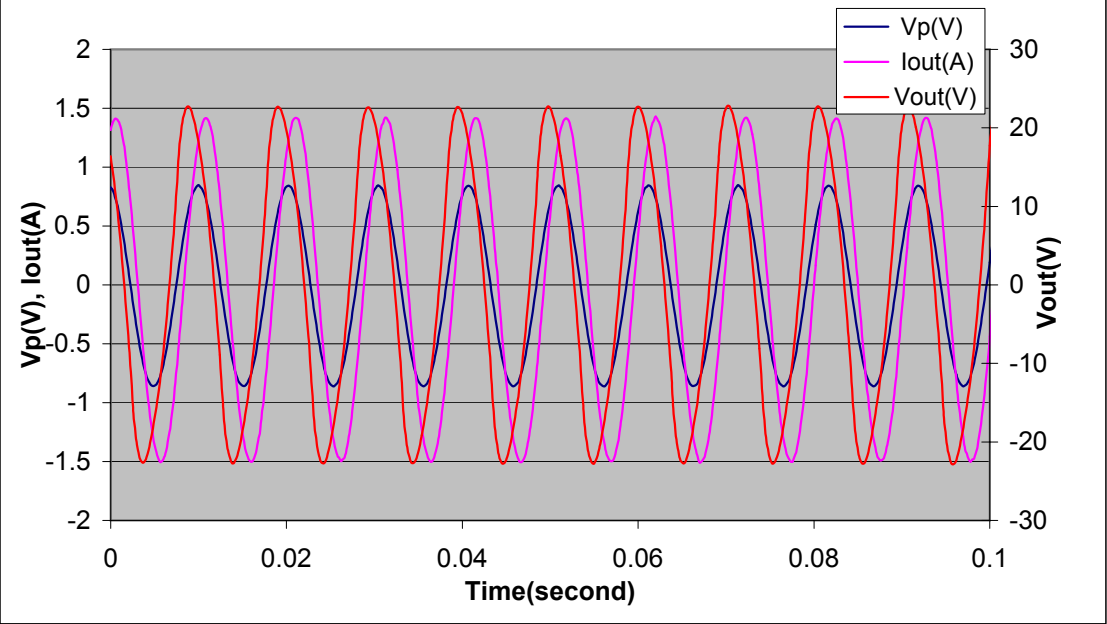
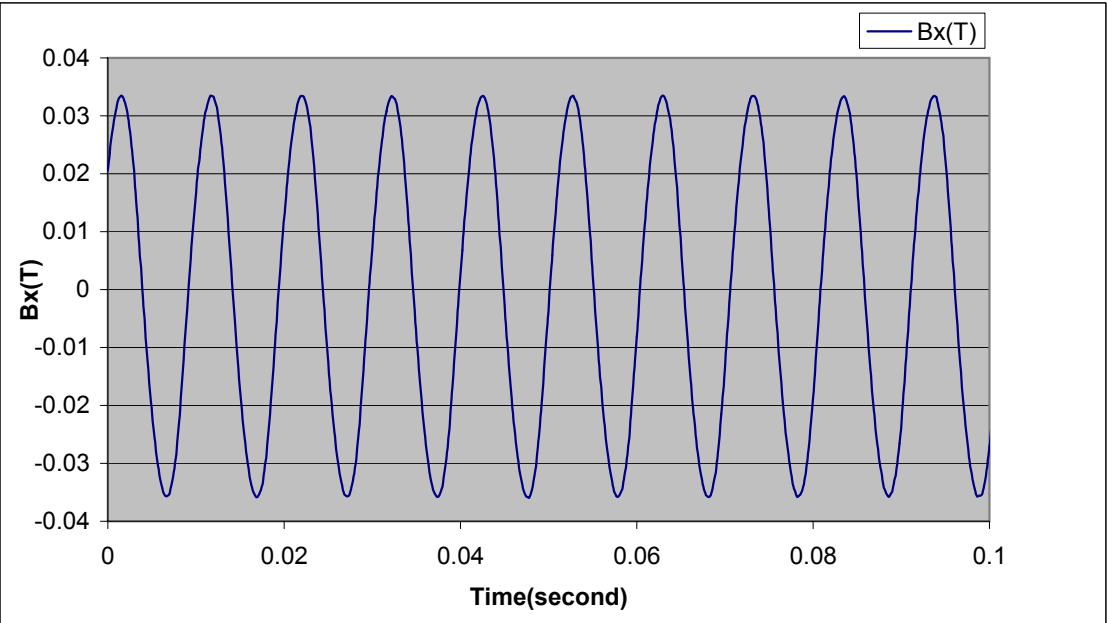
GMW ASSOCIATES
5201 Electromagnet 50Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	50Hz, sine wave, -7A~+7A		



GMW ASSOCIATES
5201 Electromagnet 100Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/2/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 20-20		
PS SN:	155399 R31		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	100Hz sine, -2A~+2A		



GMW ASSOCIATES
5201 Electromagnet 100Hz sine wave waveform

Model:	5201	Engr:	Y.Q.
Serial No:	15	Date:	12/13/2005
Pole Face:		Page:	1 of 1
Pole gap:	N/A		
Power Supply:	Kepeco 50-8		
PS SN:	154897 R24		
Position:	X=Y=0mm, Z= 2mm above pole		
Current:	100Hz, sine wave, -5A~+5A		

