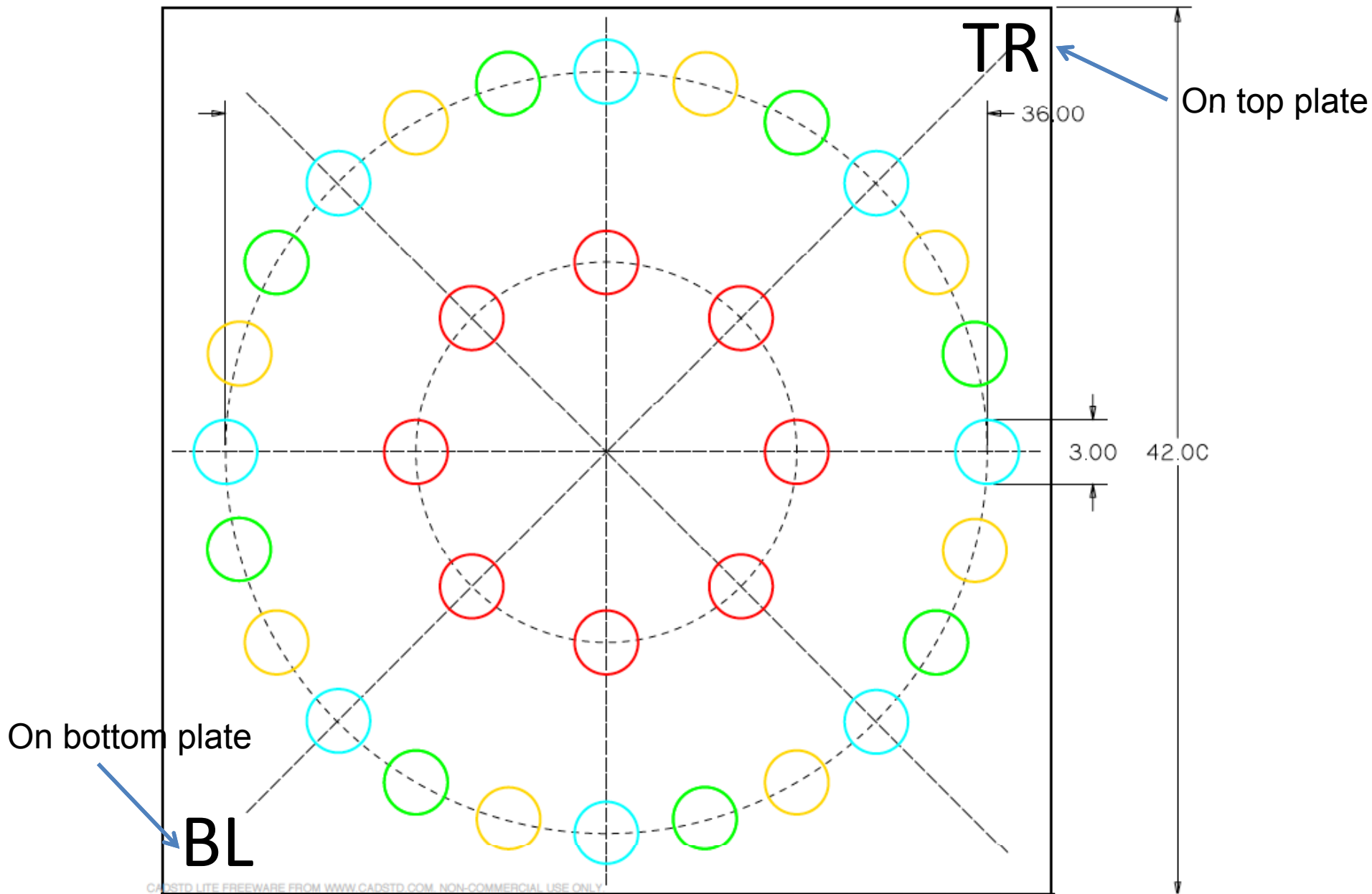


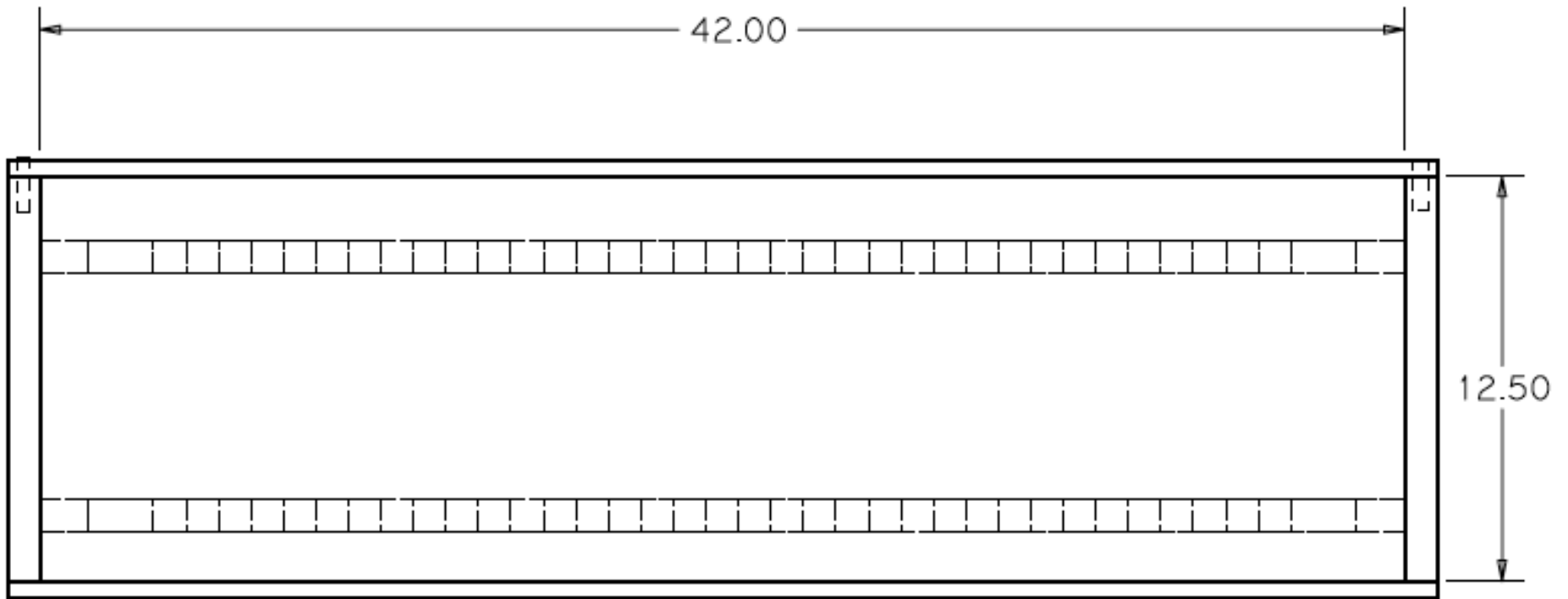
Prototype QIBA DCE-MRI Phantom Update

February 3, 2010

E. Jackson

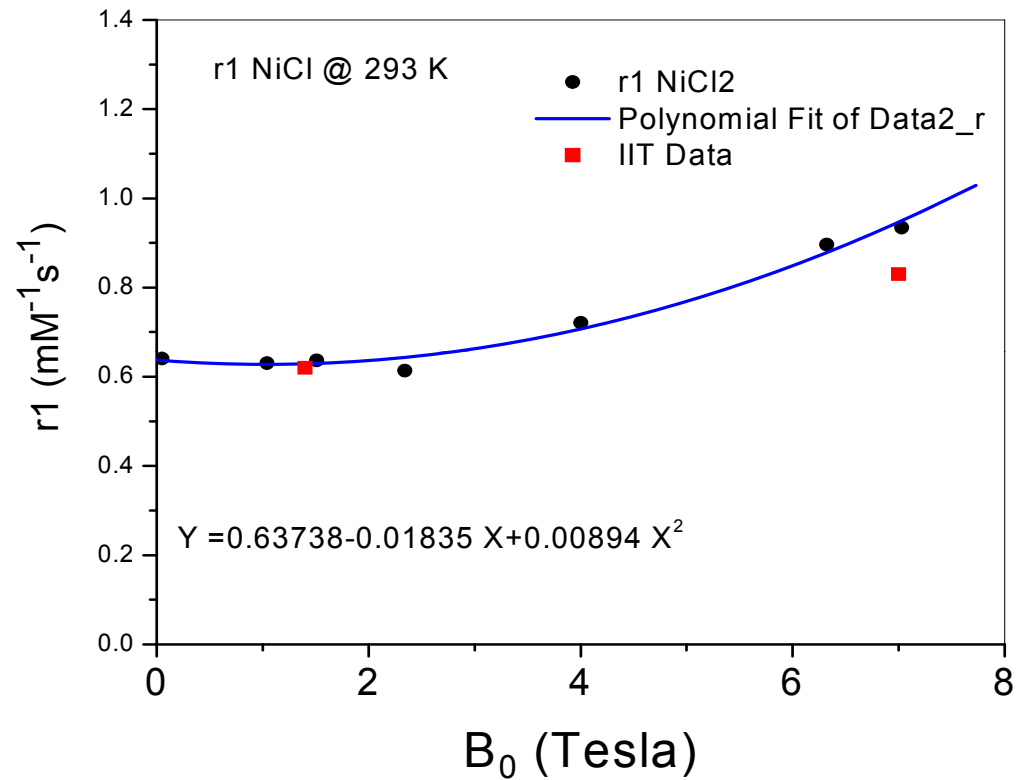


QIBA DCE-MRI Prototype Phantom – v1.0



Properties – 50 ml
material polypropylene
sterility sterile
mfr. no. Corning, 430897
L 114.9 mm
O.D. 29.1 mm
cap diam. 35.2 mm
capacity 50 ml

QIBA DCE-MRI Prototype Phantom – v1.0

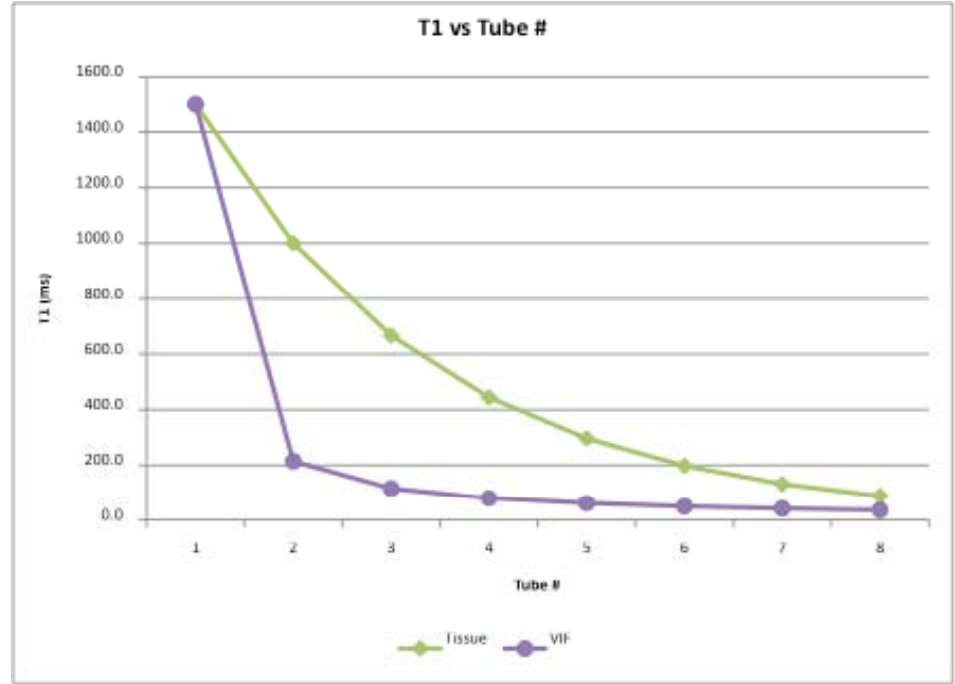
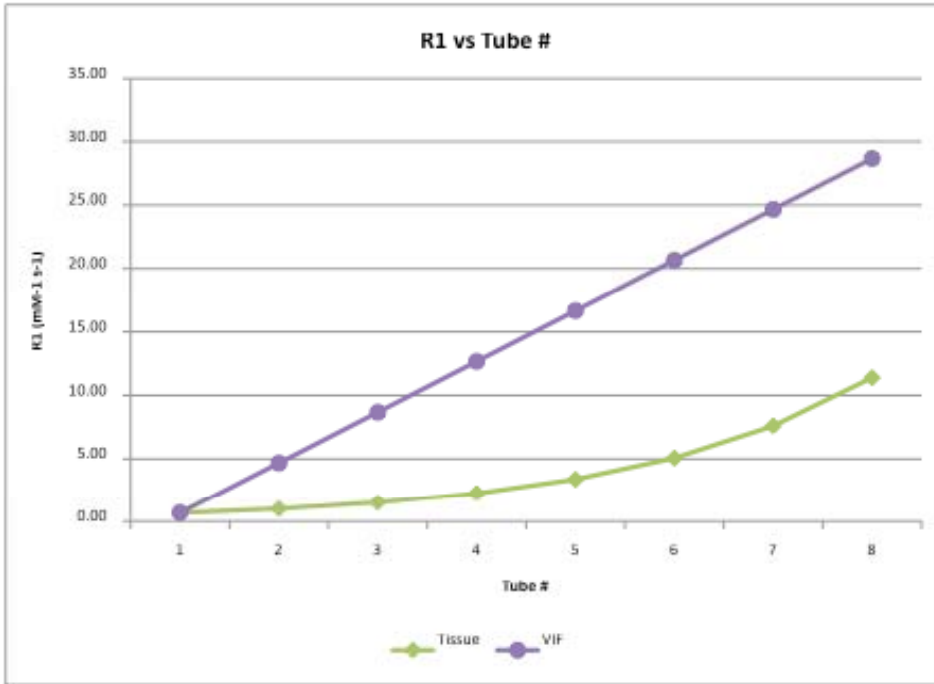


$\text{NiCl}_2 \quad r_1 \approx 0.62 \text{ mM}^{-1} \text{ s}^{-1} \quad (0.1 \sim 3.0\text{T})$

Graph from Steve Russek, NIST Boulder

see also Fig 2a in Rooney *et al.* Magn Reson Med 57:308, 2007 and Kraft *et al.*, Magn Reson Med 5:555, 1987

QIBA DCE-MRI Prototype Phantom – v1.0



$\text{NiCl}_2 \quad r_1 \approx 0.62 \text{ mM}^{-1} \text{ s}^{-1} \quad (0.1 - 2.0\text{T})$

Tissue							VIF						
T1 (ms)	R1 (s-1mM-1)	Delta R1	[NiCl2] mM	NiCl2 mg/l	NiCl2 mg/50ml		R1 (s-1mM-1)	T1 (ms)	Delta R1	[NiCl2] mM	NiCl2 mg/l	NiCl2 mg/50ml	
1500.0	0.67	0.00	1.075	139.35	6.97		0.67	1500.0	0.00	1.081	140.05	7.00	
1000.0	1.00	0.33	1.613	209.03	10.45		4.67	214.1	4.00	7.532	976.18	48.81	
666.7	1.50	0.83	2.419	313.55	15.68		8.67	115.3	8.00	13.984	1812.31	90.62	
444.4	2.25	1.58	3.629	470.32	23.52		12.67	78.9	12.00	20.435	2648.44	132.42	
296.3	3.38	2.71	5.444	705.48	35.27		16.67	60.0	16.00	26.887	3484.57	174.23	
197.5	5.06	4.40	8.165	1058.23	52.91		20.67	48.4	20.00	33.339	4320.70	216.03	
131.7	7.59	6.93	12.248	1587.34	79.37		24.67	40.5	24.00	39.790	5156.83	257.84	
87.8	11.39	10.72	18.372	2381.01	119.05		28.67	34.9	28.00	46.242	5992.95	299.65	
	Series 3		0.62 mM-1 s-1				343.22	mg NiCl2 per group of 8 vials					1226.60
							1029.65	mg Nicl2 for 3 groups of vials					

QIBA DCE-MRI Prototype Phantom – v1.0