

Study Information	
Upload Date	2021-12-20 9:51 PM
Upload Description	
Study Description	NIST^NIST
Study Date	2020-11-10 1:48 AM
Institution Name	Intermountain Neuroimaging Consortium
Phantom Serial Number	
Station Name	MRC35451
Scanner Serial Number	67087
Scanner Software Versions	syngo MR E11
Receive Coil Name	
Scanner Manufacturer	SIEMENS
Scanner Model	Prisma_fit
Phantom	130: System

Protocol Conformance	
Acquisition Conformance:	Partial ⚠
	<ul style="list-style-type: none"> Expected repetition time to be 5000 but received 2500 [Proton Density, SNR]
No Scan Data Conformance checks are defined for this protocol.	

Calculations Included								
Name	Acquisition Conformance	Calculation Warnings	Series	B Values	Flip Angles	TR (ms)	Slices	Temperature
Geometric Distortion	Full	⚠ 1	10	0	10	6.30	192	
Geometric Distortion	Full	⚠ 1	12	0	10	6.30	192	
Geometric Distortion	Full	⚠ 1	37	0	10	6.30	192	
Geometric Distortion	Full	⚠ 1	39	0	10	6.30	192	
LC Temperature	Full	⚠ 1	10, 12, 37, 39	0	10	6.30	192	
Proton Density	Partial ⚠	⚠ 1	35	0	90	2500	1	
Proton Density	Partial ⚠	⚠ 1	36	0	90	2500	1	
SNR	Partial ⚠	⚠ 1	35, 36	0	90	2500	1	
T1 VFA	Full	⚠ 1	24, 25, 26, 27, 28, 29, 30	0	2, 5, 10, 15, 20, 25, 30	6.60	32	
T1 VTI	Full	⚠ 1	14, 15, 16, 17, 18, 19, 20, 21, 22, 23	0	150	4500	1	
T2	Full	⚠ 2	31	0	180	5000	1	

Volume Statistics	
Scale Factor (10)	1.002260
Scale Factor (12)	1.001536
Scale Factor (37)	1.002203
Scale Factor (39)	1.001440
Temperature (10)	19.6 +/- 0.8 deg C (5 bright vials) 
Temperature (12)	19.6 +/- 0.8 deg C (5 bright vials) 
Temperature (37)	20.7 +/- 0.9 deg C (6 bright vials) 
Temperature (39)	20.7 +/- 0.9 deg C (6 bright vials) 

Fiducial VOI Statistics

Label	Description	L/R Expected	A/P Expected	S/I Expected	Measured L/R	Measured A/P	Measured S/I	Intensity	Center Dist vs Expected	Dist From Expected	L/R Distortion	A/P Distortion	S/I Dis
		mm	mm	mm	mm	mm	mm	%	%	mm	mm	mm	mm
①	Center	0	0	0	0	0	0	100	100	0	0	0	0
②	Inner	0	40.0	0	-0.082	40.1	-0.022	110	100	0.12	-0.082	0.089	-0.022
③	Inner	-40.0	0	0	-39.9	0.0027	-0.066	112	99.8	0.11	0.086	0.0027	-0.066
④	Inner	0	0	-40.0	0.022	-0.018	-40.0	86.6	100	0.058	0.022	-0.018	-0.035
⑤	Inner	0	0	40.0	-0.0068	0.053	40.1	106	100	0.085	-0.0068	0.053	0.063
⑥	Inner	40.0	0	0	39.6	-0.032	-0.065	111	98.9	0.45	-0.44	-0.032	-0.065
⑦	Inner	0	-40.0	0	-0.0088	-40.1	-0.039	98.9	100	0.12	-0.0088	-0.12	-0.039
⑧	Inner	-40.0	40.0	0	-39.9	40.2	0.0064	131	100	0.20	0.12	0.16	0.0064
⑨	Inner	0	40.0	-40.0	-0.12	39.9	-40.0	102	99.9	0.18	-0.12	-0.13	-0.029
⑩	Inner	0	40.0	40.0	-0.028	40.1	40.1	116	100	0.15	-0.028	0.11	0.10
⑪	Inner	40.0	40.0	0	39.6	40.2	-0.044	131	99.8	0.46	-0.39	0.22	-0.044
⑫	Inner	-40.0	0	-40.0	-39.9	0.045	-40.1	104	100	0.20	0.13	0.045	-0.14
⑬	Inner	-40.0	0	40.0	-39.9	-0.039	40.1	125	100	0.10	0.057	-0.039	0.066
⑭	Inner	40.0	0	-40.0	39.5	0.061	-40.2	105	99.6	0.59	-0.54	0.061	-0.23
⑮	Inner	40.0	0	40.0	39.6	0.010	40.1	125	99.6	0.47	-0.44	0.010	0.14
⑯	Inner	-40.0	-40.0	0	-40.0	-40.2	-0.055	124	100	0.19	0.031	-0.18	-0.055
⑰	Inner	0	-40.0	-40.0	0.051	-40.1	-40.2	75.1	100	0.19	0.051	-0.067	-0.17
⑱	Inner	0	-40.0	40.0	-0.014	-40.0	40.2	107	100	0.22	-0.014	-0.037	0.22
⑲	Inner	40.0	-40.0	0	39.6	-40.2	-0.10	119	99.7	0.49	-0.45	-0.17	-0.10
⑳	Inner	-40.0	40.0	-40.0	-39.8	40.1	-40.1	127	100.0	0.21	0.18	0.053	-0.076
㉑	Inner	-40.0	40.0	40.0	-40.0	40.1	40.1	141	100	0.18	0.042	0.15	0.096
㉒	Inner	40.0	40.0	-40.0	39.6	40.0	-40.1	129	99.8	0.39	-0.38	-0.016	-0.094
㉓	Inner	40.0	40.0	40.0	39.6	40.2	40.1	142	99.9	0.51	-0.45	0.21	0.12
㉔	Inner	-40.0	-40.0	-40.0	-39.9	-40.2	-40.3	90.6	100	0.33	0.051	-0.18	-0.27
㉕	Inner	-40.0	-40.0	40.0	-40.0	-40.2	40.1	127	100	0.23	0.021	-0.15	0.15
㉖	Inner	40.0	-40.0	-40.0	39.5	-40.0	-40.1	86.5	99.7	0.52	-0.49	-0.047	-0.14
㉗	Inner	40.0	-40.0	40.0	39.6	-40.2	40.2	128	100.0	0.48	-0.40	-0.18	0.18
㉘	Left	0	-80.0	0	-0.086	-80.3	-0.063	122	100	0.34	-0.086	-0.32	-0.063
㉙	Left	-40.0	-80.0	0	-39.9	-80.4	-0.10	220	100	0.39	0.074	-0.37	-0.10
㉚	Left	0	-80.0	-40.0	0.0034	-80.4	-40.3	64.9	101	0.50	0.0034	-0.35	-0.35
㉛	Left	0	-80.0	40.0	-0.087	-80.3	40.3	156	100	0.46	-0.087	-0.32	0.31
㉜	Left	40.0	-80.0	0	39.5	-80.3	-0.13	193	100	0.64	-0.52	-0.34	-0.13
㉝	Right	0	80.0	0	-0.21	80.3	0.040	166	100	0.36	-0.21	0.28	0.040
㉞	Right	-40.0	80.0	0	-39.8	80.4	0.066	214	100	0.45	0.19	0.40	0.066
㉟	Right	0	80.0	-40.0	-0.19	80.1	-40.1	163	100	0.28	-0.19	0.15	-0.11
㊱	Right	0	80.0	40.0	-0.12	80.3	40.2	191	100	0.41	-0.12	0.33	0.20
㊲	Right	40.0	80.0	0	39.8	80.4	0.074	239	100	0.50	-0.24	0.42	0.074
㊳	Posterior	80.0	0	0	79.3	0.039	0.019	173	99.1	0.70	-0.70	0.039	0.019
㊴	Posterior	80.0	40.0	0	79.4	40.2	0.12	187	99.5	0.61	-0.56	0.21	0.12
㊵	Posterior	80.0	0	-40.0	79.5	0.049	-40.2	161	99.6	0.56	-0.51	0.049	-0.18
㊶	Posterior	80.0	0	40.0	80.9	-0.12	40.3	184	101	0.95	0.87	-0.12	0.34
㊷	Posterior	80.0	-40.0	0	79.4	-40.2	-0.016	175	99.5	0.59	-0.55	-0.18	-0.016
㊸	Anterior	-80.0	40.0	0	-79.7	40.2	-0.087	197	99.9	0.38	0.26	0.25	-0.087
㊹	Anterior	-80.0	0	-40.0	-79.7	0.068	-40.3	151	99.8	0.41	0.29	0.068	-0.26
㊺	Anterior	-80.0	0	40.0	-79.8	0.084	40.0	178	99.8	0.26	0.22	0.084	0.038
㊻	Anterior	-80.0	-40.0	0	-79.7	-40.1	-0.19	165	99.8	0.37	0.26	-0.14	-0.19
㊼	Superior	0	0	80.0	0.034	0.23	79.9	120	99.9	0.29	0.034	0.23	-0.084
㊽	Superior	0	40.0	80.0	0.075	40.0	79.9	155	99.9	0.17	0.075	-0.0053	-0.082
㊾	Superior	-40.0	0	80.0	-39.8	0.11	80.0	162	99.9	0.28	0.24	0.11	0.0017
㊿	Superior	40.0	0	80.0	39.5	0.019	80.1	166	99.9	0.52	-0.51	0.019	0.11
1	Superior	0	-40.0	80.0	0.0095	-39.7	80.2	125	100	0.33	0.0095	0.26	0.16
2	Inferior	0	0	-80.0	-0.088	0.0081	-79.9	49.4	99.9	0.36	-0.088	0.0081	0.11
3	Inferior	0	40.0	-80.0	-0.14	39.7	-79.9	60.9	99.7	0.47	-0.14	-0.34	0.15
4	Inferior	-40.0	0	-80.0	-39.6	0.19	-79.9	60.1	99.7	0.49	0.41	0.19	0.10
5	Inferior	40.0	0	-80.0	39.4	0.17	-80.0	64.2	99.7	0.61	-0.56	0.17	-0.019
6	Inferior	0	-40.0	-80.0	0.017	-39.9	-80.1	28.8	100	0.40	0.017	0.15	-0.073

Proton Density VOI Statistics

Label	Contents	Expected PD	Apparent PD	Locally Corrected PD	SNR
		%	%	%	
57	H2O_5	5		5.25	75.3
58	H2O_10	10		9.85	109
59	H2O_15	15		14.7	157
60	H2O_20	20		20.3	278
61	H2O_25	25		26.0	220
62	H2O_30	30		32.3	201
63	H2O_35	35		34.8	363
64	H2O_40	40		37.8	564
65	H2O_50	50		46.6	847
66	H2O_60	60		55.8	656
67	H2O_70	70		65.4	464
68	H2O_80	80		75.2	288
69	H2O_90	90		89.2	759
70	H2O_100	100		100	908

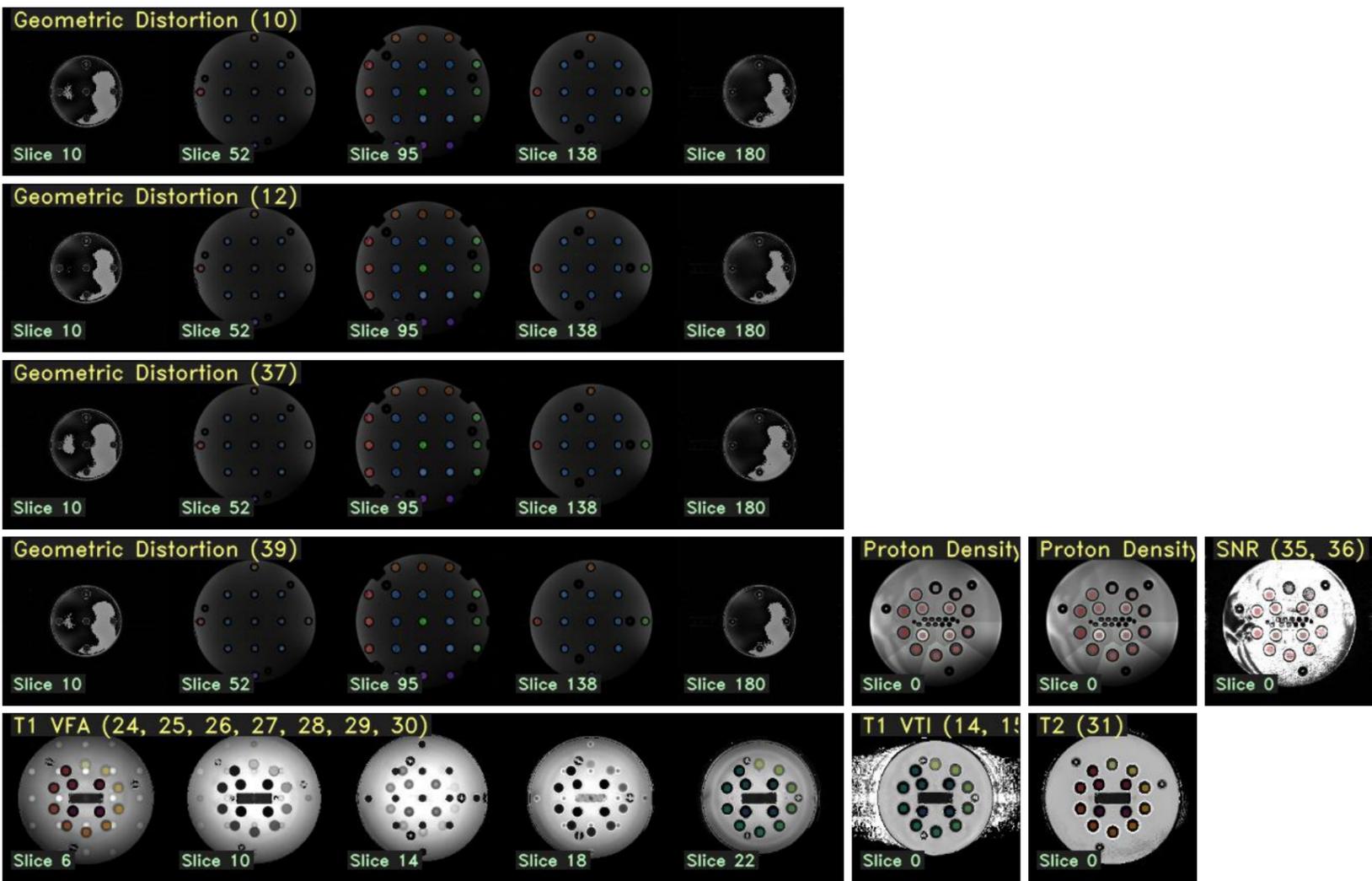
T1 VOI Statistics

Label	Contents	NIST Value	T1 (VFA)	Bias (VFA)	Bias Percent (VFA)	T1 (VTI)	Bias (VTI)	Bias Percent (VTI)
		ms	ms	ms	%	ms	ms	%
71	None mM MnCl_0.0113 ₂	2478	2548	69.5	2.80			
72	None mM MnCl_0.0181 ₂	2186	2337	151	6.93			
73	None mM MnCl_0.0282 ₂	1901	2017	116	6.10			
74	None mM MnCl_0.0434 ₂	1550	1614	63.9	4.12			
75	None mM MnCl_0.0673 ₂	1198	1165	-32.8	-2.74			
76	None mM MnCl_0.0934 ₂	1026	908	-119	-11.6			
77	None mM MnCl_0.1353 ₂	805	736	-69.5	-8.63			
78	None mM MnCl_0.193 ₂	600	596	-3.77	-0.63			
79	None mM MnCl_0.2768 ₂	431	455	23.7	5.50			
80	None mM MnCl_0.4276 ₂	293	302	9.28	3.17			
81	None mM MnCl_0.5555 ₂	227	268	41.4	18.3			
82	None mM MnCl_0.7902 ₂	158	186	27.6	17.4			
83	None mM MnCl_1.1274 ₂	117	131	14.1	12.1			
84	None mM MnCl_1.5996 ₂	87.1	90.2	3.11	3.57			
85	None mM NiCl_0.29 ₂	1884	1932	47.8	2.54	1839	-44.7	-2.38
86	None mM NiCl_0.60 ₂	1330	1504	174	13.1	1345	14.5	1.09
87	None mM NiCl_1.04 ₂	987	1080	92.4	9.35	980	-6.93	-0.70
88	None mM NiCl_1.64 ₂	690	712	21.7	3.14	681	-9.38	-1.36
89	None mM NiCl_2.52 ₂	485	468	-17.1	-3.52	483	-2.38	-0.49
90	None mM NiCl_3.68 ₂	342	309	-32.1	-9.41	337	-4.23	-1.24
91	None mM NiCl_5.43 ₂	241	231	-10.1	-4.17	238	-2.84	-1.18
92	None mM NiCl_7.74 ₂	175	187	12.4	7.09	174	-0.59	-0.34
93	None mM NiCl_11.3 ₂	121	133	12.4	10.2	120	-1.11	-0.92
94	None mM NiCl_16.5 ₂	85.8	88.6	2.81	3.27	86.3	0.58	0.68
95	None mM NiCl_23.3 ₂	60.2	71.8	11.6	19.2	61.1	0.86	1.43
96	None mM NiCl_32.7 ₂	42.9	49.7	6.79	15.8	43.6	0.70	1.63
97	None mM NiCl_46.0 ₂	30.4	32.8	2.43	8.00	30.8	0.40	1.32
98	None mM NiCl_65.3 ₂	21.4	23.4	2.00	9.31	21.6	0.20	0.94

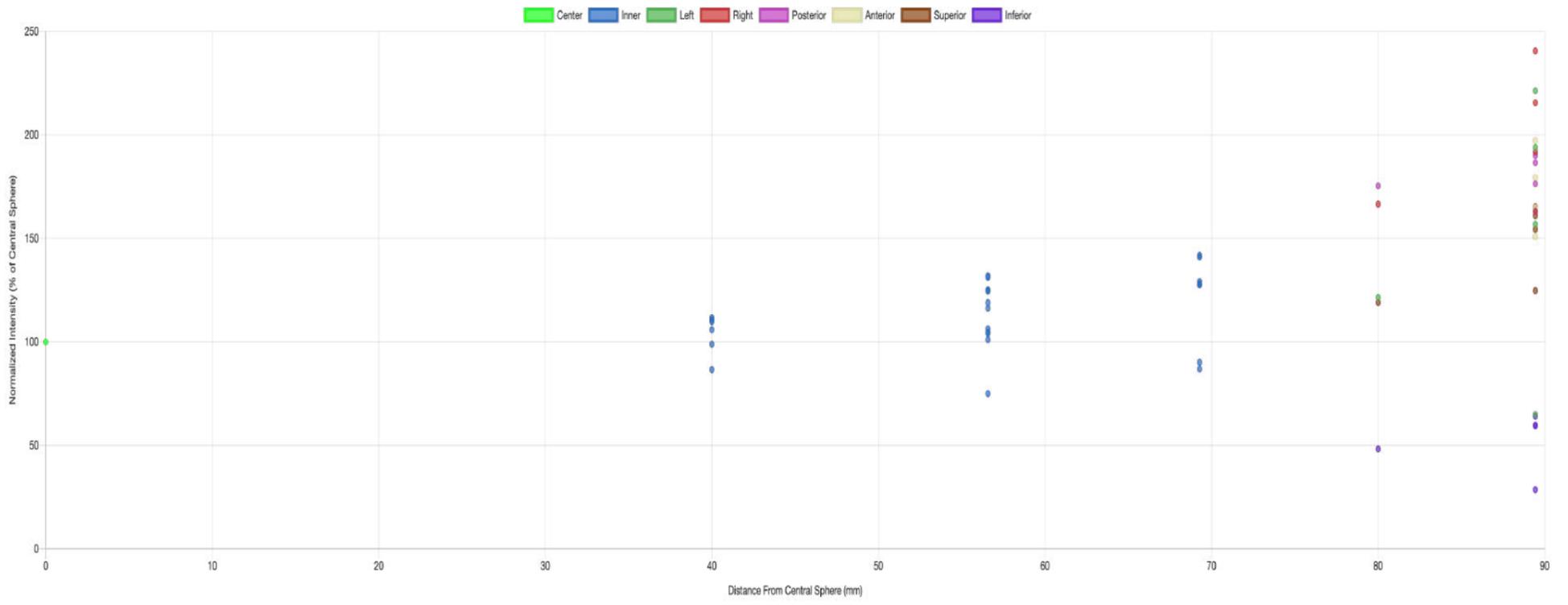
T2 VOI Statistics

Label	Contents	NIST Value	Mean	Bias	Bias Percent
		ms	ms	ms	%
71	None mM MnCl_0.0113 ₂	553	622	69.5	12.6
72	None mM MnCl_0.0181 ₂	379	442	62.6	16.5
73	None mM MnCl_0.0282 ₂	267	309	41.8	15.7
74	None mM MnCl_0.0434 ₂	175	204	28.5	16.3
75	None mM MnCl_0.0673 ₂	113	134	20.9	18.6
76	None mM MnCl_0.0934 ₂	88.9	104	15.2	17.1
77	None mM MnCl_0.1353 ₂	63.4	77.1	13.7	21.6
78	None mM MnCl_0.193 ₂	44.2	54.8	10.6	24.0
79	None mM MnCl_0.2768 ₂	29.9	37.8	7.94	26.6
80	None mM MnCl_0.4276 ₂	19.4	24.4	4.99	25.7
81	None mM MnCl_0.5555 ₂	14.7	18.7	3.95	26.8
82	None mM MnCl_0.7902 ₂	10.5	12.2	1.72	16.3
83	None mM MnCl_1.1274 ₂	7.27	8.46	1.19	16.4
84	None mM MnCl_1.5996 ₂	5.28	4.96	-0.32	-5.99

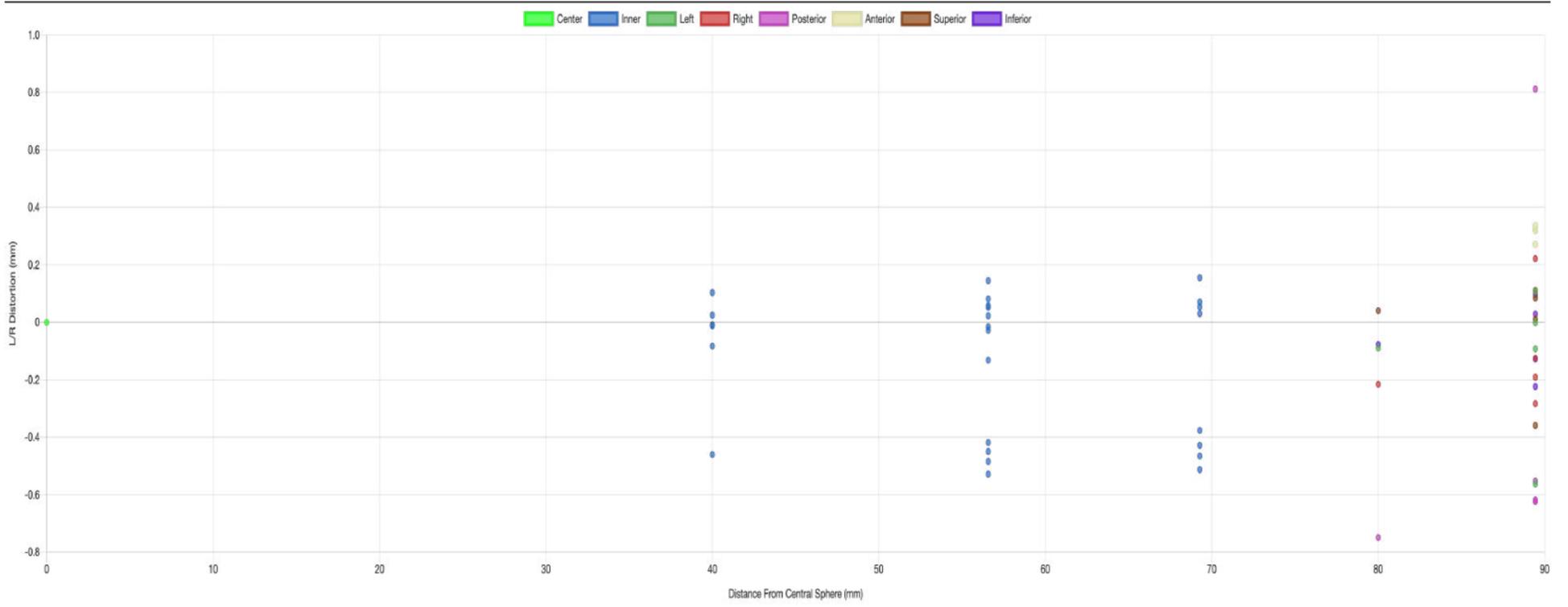
VOIs and Scalar Maps



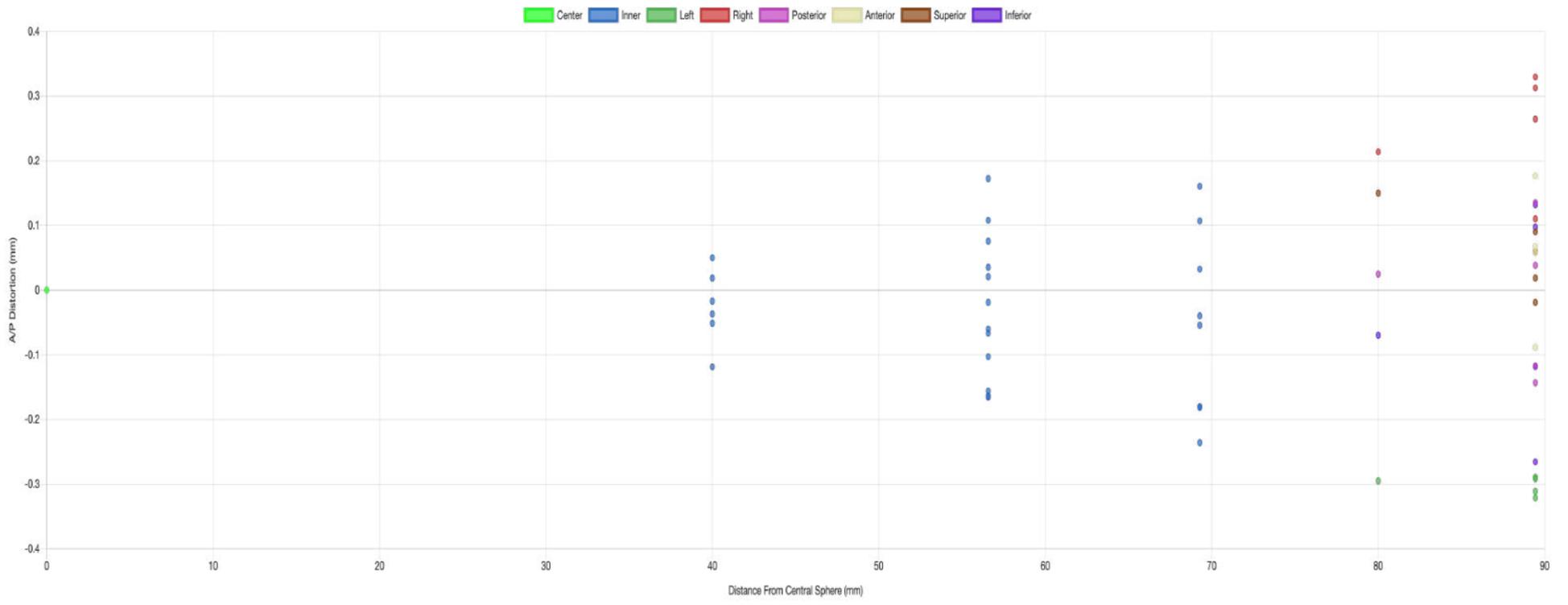
Normalized Fiducial Sphere Intensity



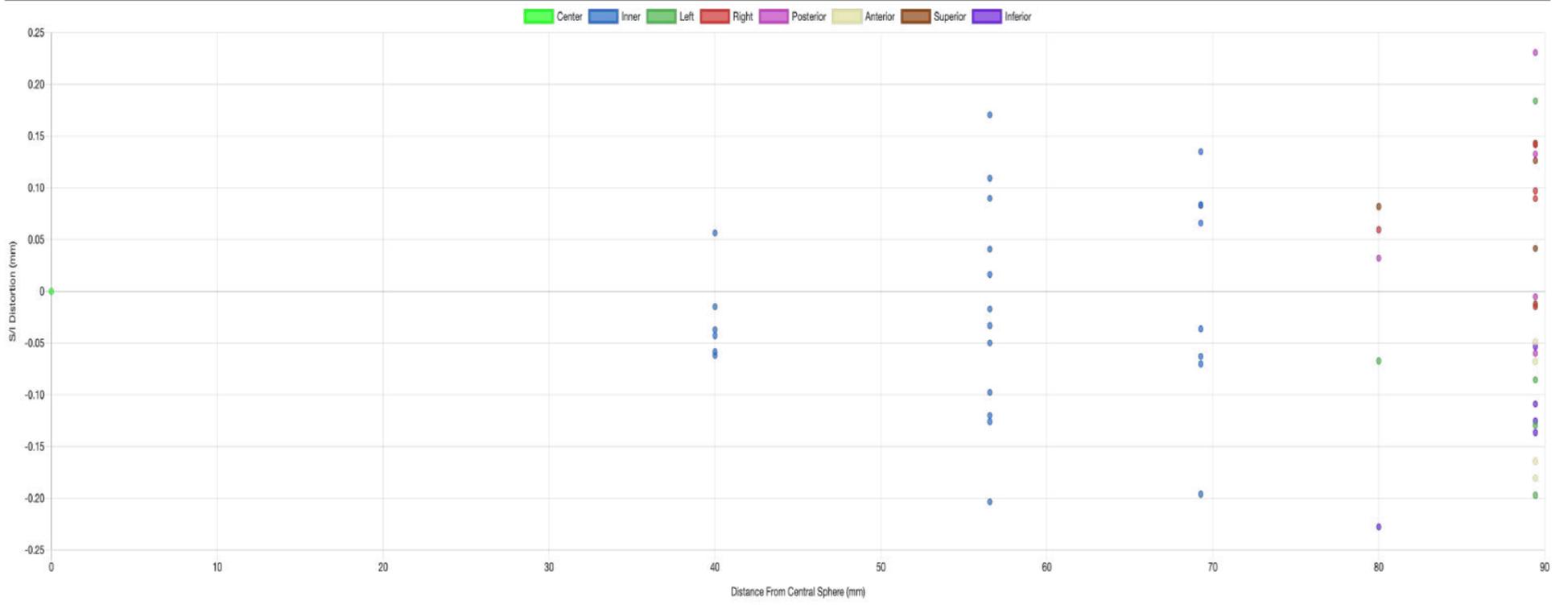
Distance From Central Sphere vs Left/Right Distortion



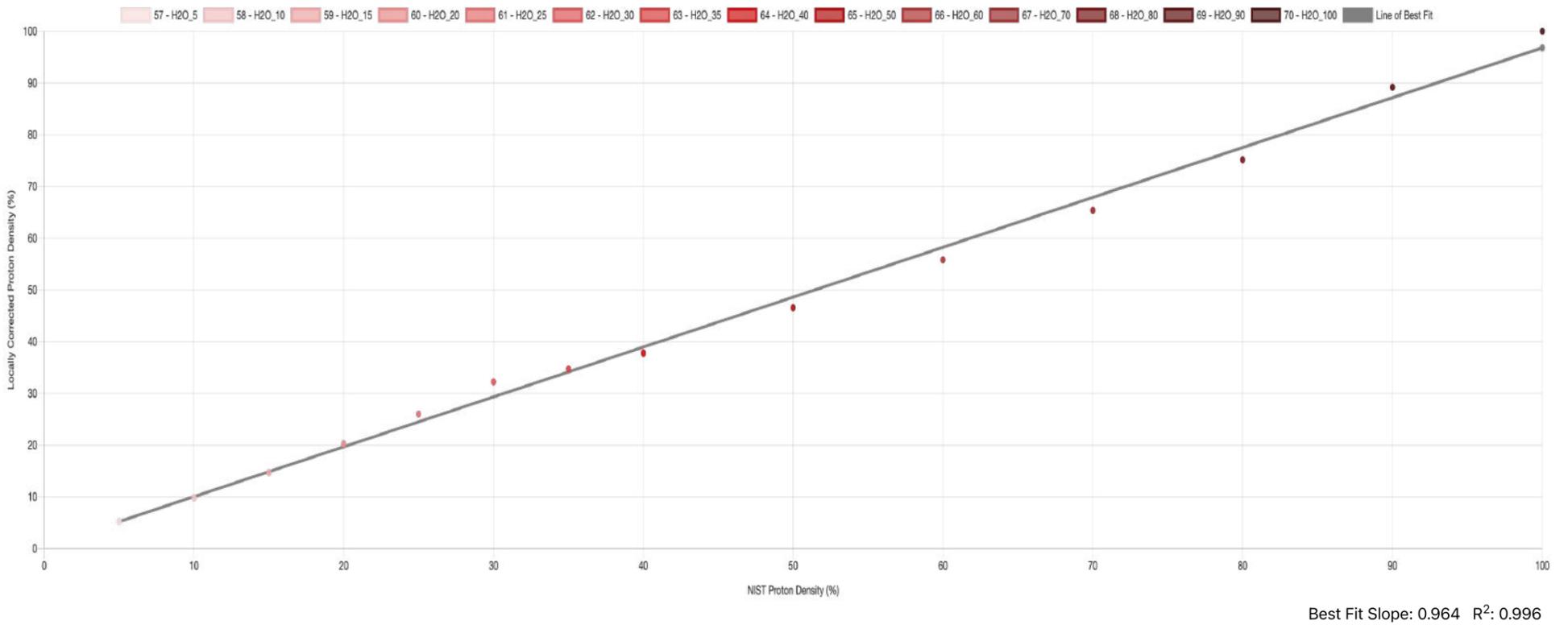
Distance From Central Sphere vs Anterior/Posterior Distortion



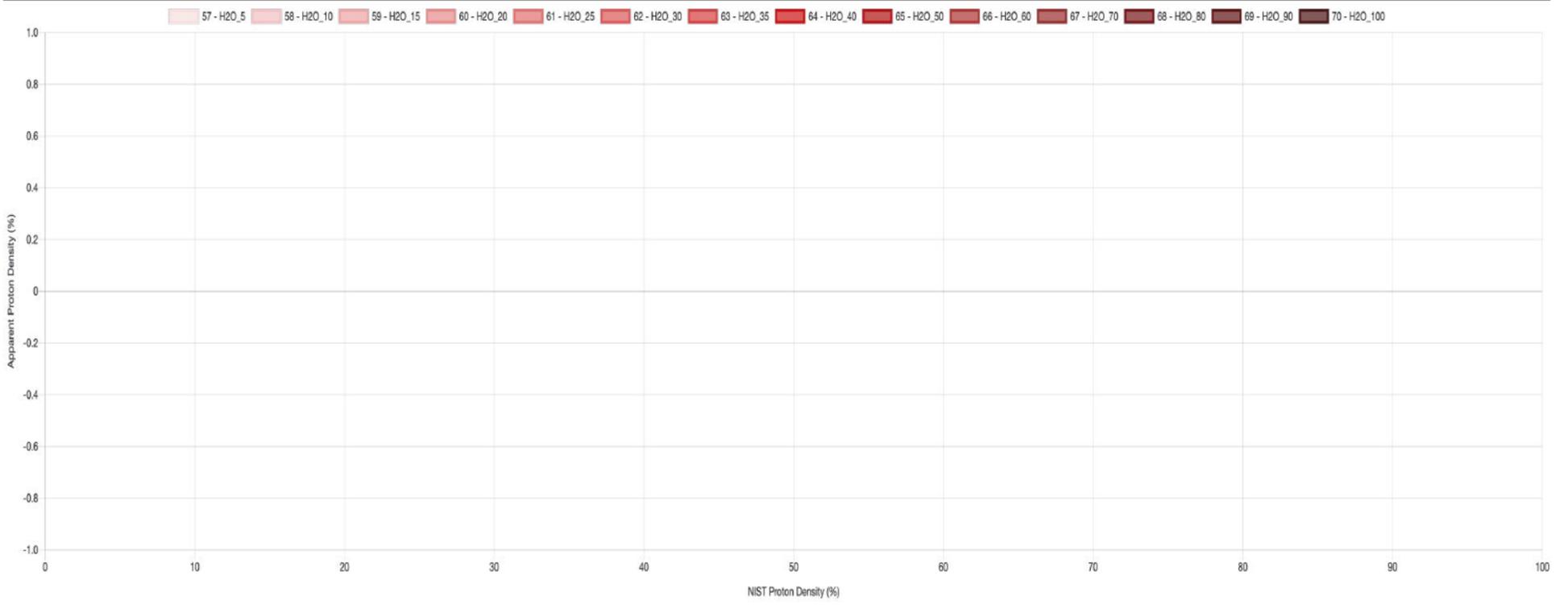
Distance From Central Sphere vs Superior/Inferior Distortion



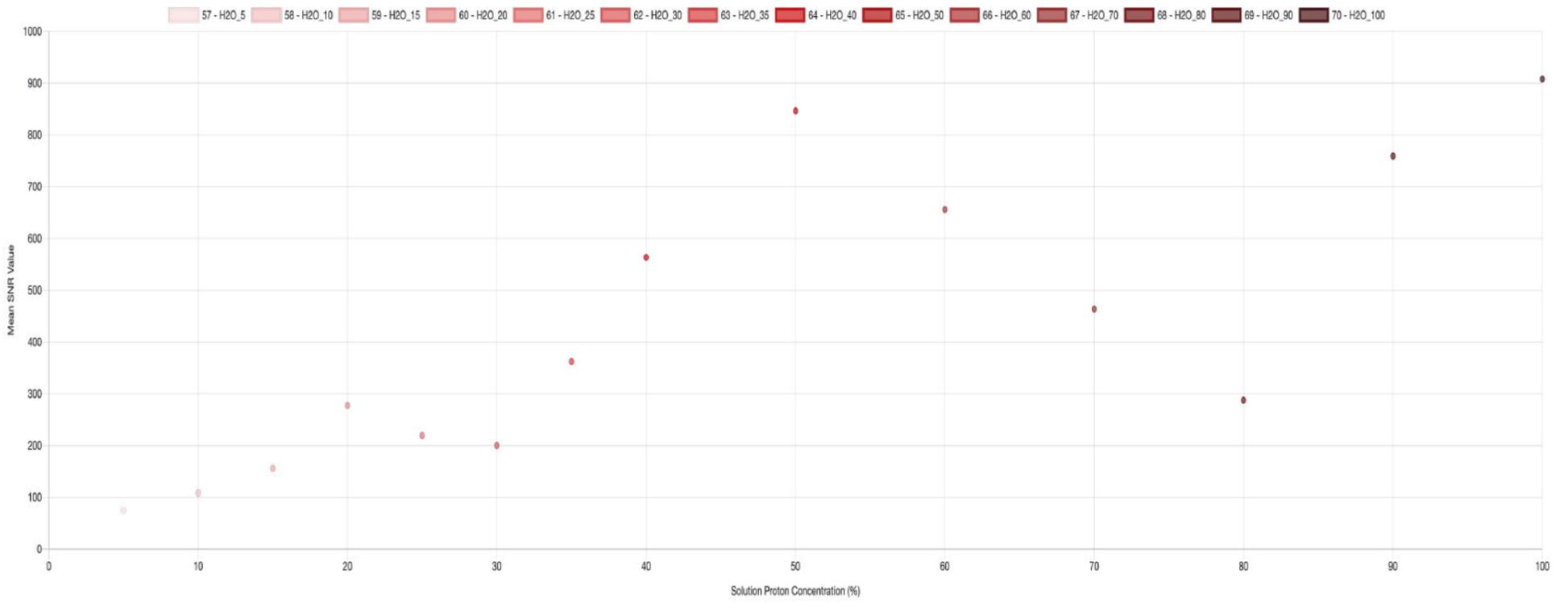
NIST Proton Density Value vs Locally Corrected Proton Density



NIST Proton Density Value vs Apparent Proton Density

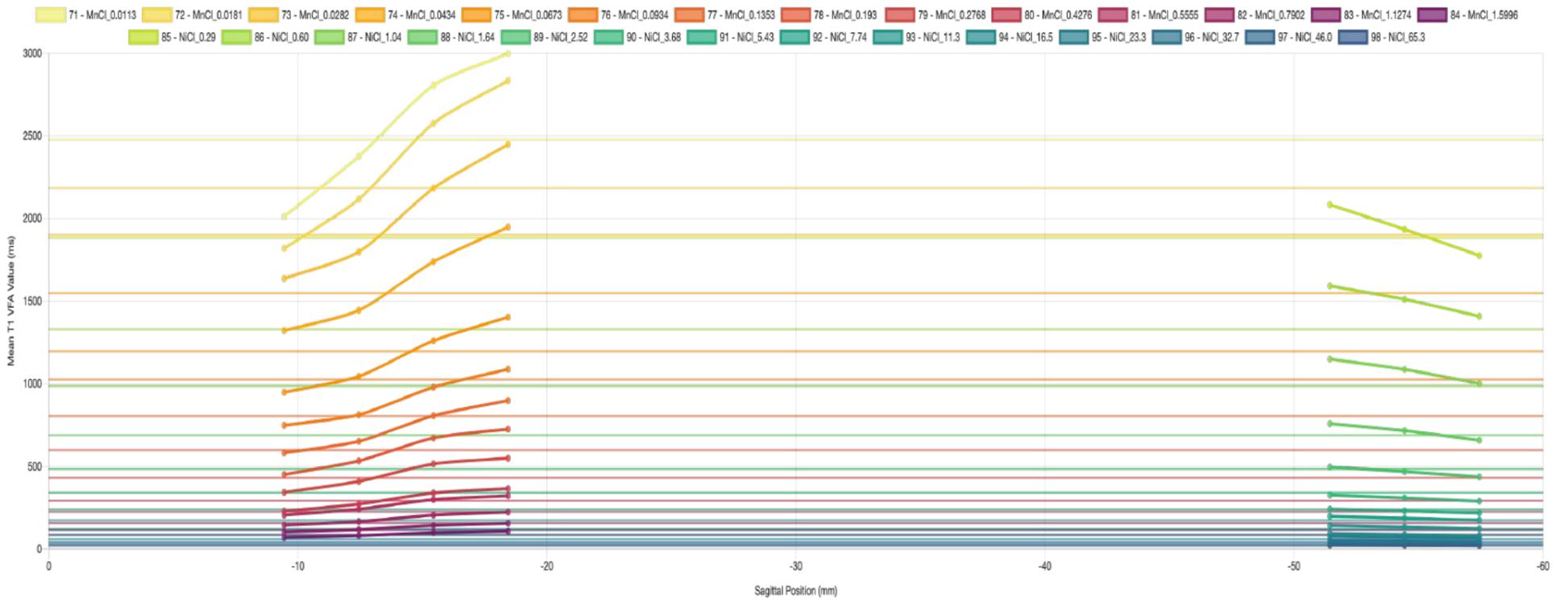


Proton Density vs SNR



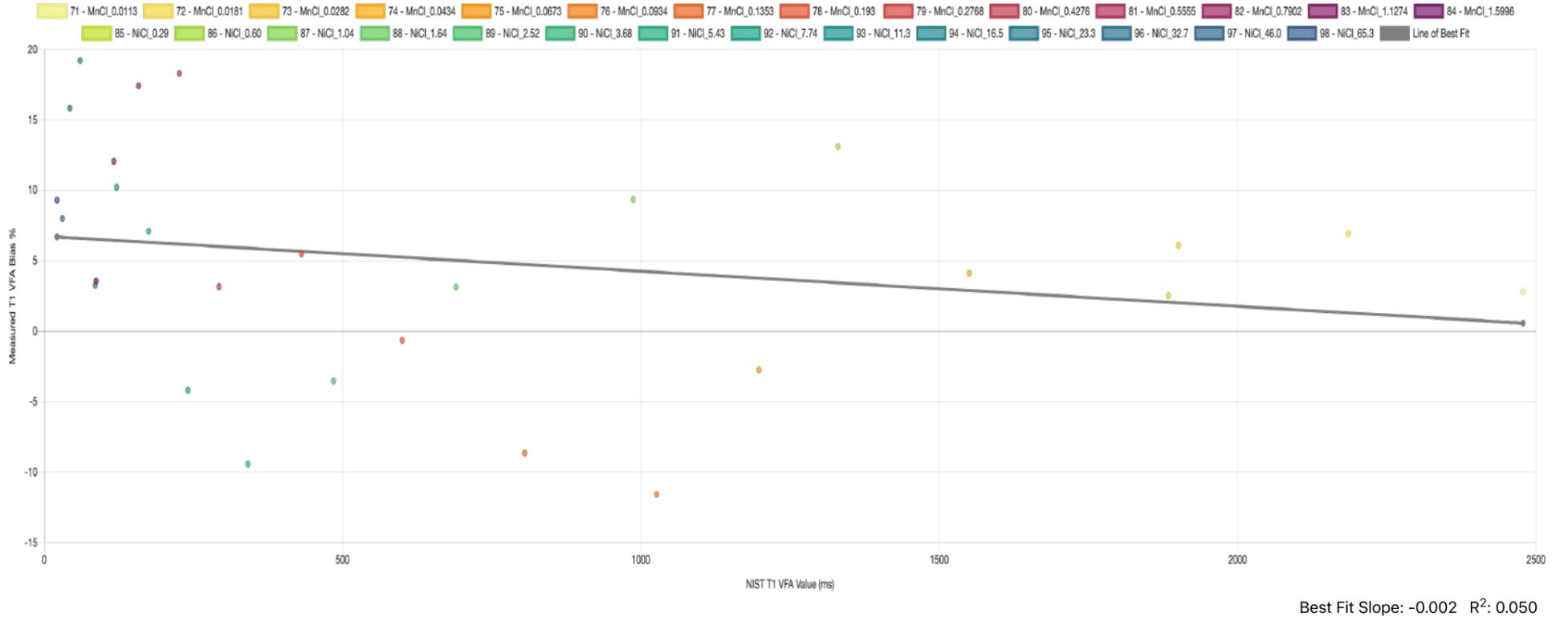
T1 VFA Value vs Sagittal Position

Change Data Subgroups: All Data MnCl₂ NiCl₂



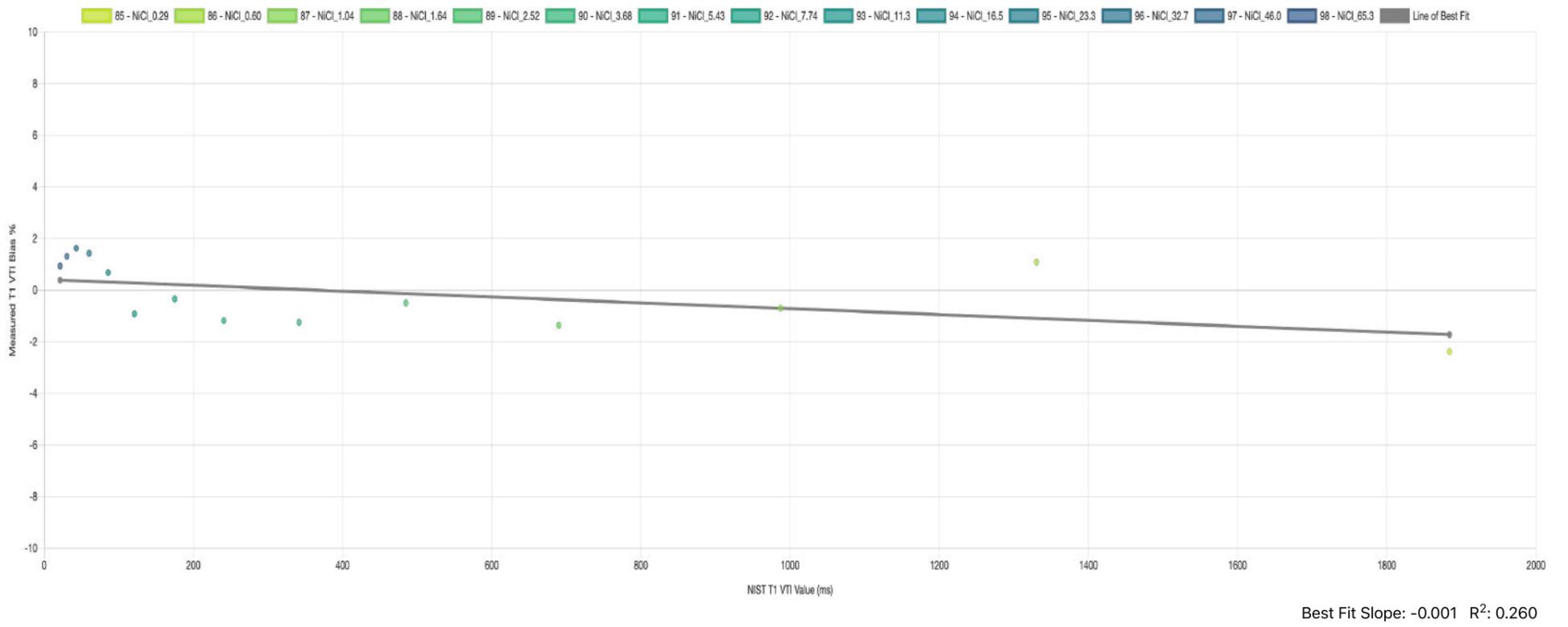
NIST T1 VFA Value vs Measured T1 VFA Bias

Change Data Subgroups: All Data MnCl₂ NiCl₂



NIST T1 VTI Value vs Measured T1 VTI Bias

Change Data Subgroups: All Data NiCl₂



NIST T2 Value vs Measured T2 Bias

Change Data Subgroups: All Data MnCl₂

