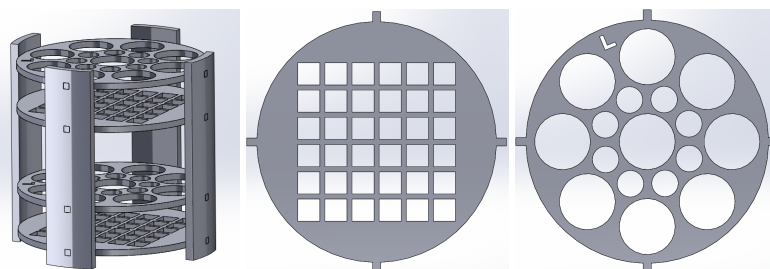


CEST Phantom Quality Assurance Report

Scanner Information

Institution: UCLA Radiological Sciences
Scan Date: 21 Feb 2020
Scanner: SIEMENS Prisma-fit
Software Version: syngo MR E11
Field Strength: 3T

Physical Phantom Structure



Sequence Information - Anatomic

T1w Sequence:

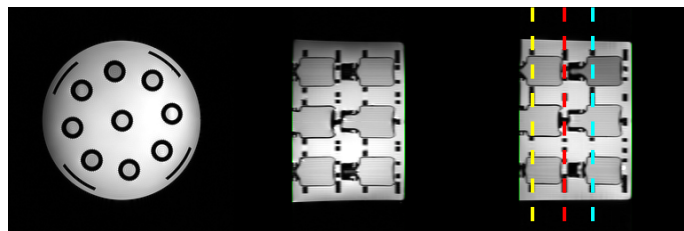
- Sequence Name: *tfl3d1-16ns
- Matrix Size: 256 x 256 x 128
- Voxel Size: 0.94 x 0.94 x 1.00 mm
- Repetition Time: 5000 ms
- Echo Time(s): 2.3 ms
- Inversion Time(s): 900 ms
- Flip Angle: 8 degree
- Number of Averages: 1
- Pixel Bandwidth: 200 Hz

T2w Sequence:

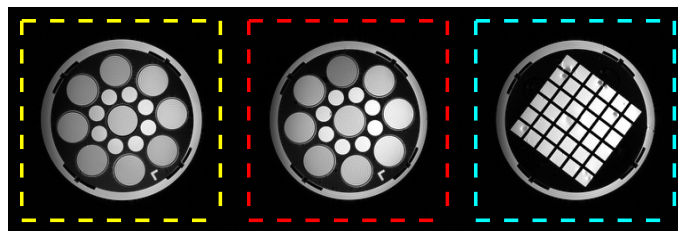
- Sequence Name: *tse2d1-18
- Matrix Size: 256 x 256 x 64
- Voxel Size: 0.94 x 0.94 x 2.00 mm
- Repetition Time: 12050 ms
- Echo Time(s): 100.0 ms
- Inversion Time(s): NaN ms
- Flip Angle: 150 degree
- Number of Averages: 1
- Pixel Bandwidth: 220 Hz

Registration to Template - T_2w

Middle slices of coronal view, sagittal view, and axial view.



Slices across the three colored platforms.



Note: Here we demonstrate composite RGB images showing template T_2w images and acquired T_2w images overlaid in different color bands. Gray regions in the composite image show where the two images have the same intensities. Magenta and green regions show where the intensities are different.

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Sequence Information - Mappings

T1 Mapping Sequence:	T2 Mapping Sequence:	CEST Sequence:
- Sequence Name: *epir2d1-128	- Sequence Name: *se2d8	- Sequence Name: epse2d4-128
- Matrix Size: 128 x 128 x 32	- Matrix Size: 128 x 128 x 32	- Matrix Size: 128 x 128 x 32
- Voxel Size: 1.88 x 1.88 x 4.00 mm	- Voxel Size: 1.88 x 1.88 x 4.00 mm	- Voxel Size: 1.88 x 1.88 x 4.00 mm
- Repetition Time: 10000 ms	- Repetition Time: 6500 ms	- Repetition Time: 15140 ms
- Echo Time(s): 20.0 ms	- Echo Time(s): 49.0 98.0 147.0 196.0	- Echo Time(s): 14.1 34.1 58.0 92.4 ms
- Inversion Time(s): 200 400 700 1100	245.0 294.0 343.0 392.0 ms	- Inversion Time(s): NaN ms
1500 2500 3500 4500 ms	- Inversion Time(s): NaN ms	- Flip Angle: 90 degree
- Flip Angle: 90 degree	- Flip Angle: 180 degree	- Number of Averages: 1
- Number of Averages: 1	- Number of Averages: 1	- Pixel Bandwidth: 1630 Hz
- Pixel Bandwidth: 1630 Hz	- Pixel Bandwidth: 260 Hz	

Summary of MRI measurements (mean \pm SD)

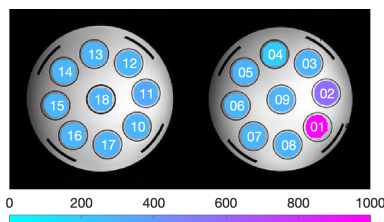
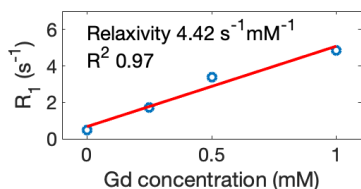
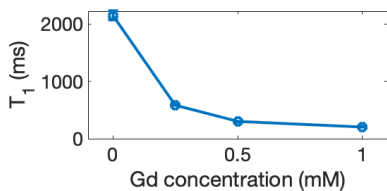
Sample #	pH	Gd (mM)	Phosphate (mM)	Glycine (mM)	T1 (ms)	T2 (ms)	MTRasym (%)
#1	5.97	0.00	10.00	50.00	2144.47 \pm 87.51	961.71 \pm 22.97	22.07 \pm 0.64
#2	5.99	0.25	10.00	50.00	587.33 \pm 10.23	421.89 \pm 10.64	8.38 \pm 0.42
#3	6.00	0.50	10.00	50.00	296.42 \pm 9.11	275.83 \pm 8.57	5.53 \pm 0.28
#4	6.01	1.00	10.00	50.00	205.99 \pm 6.25	159.76 \pm 9.18	3.36 \pm 0.31
#5	6.11	0.50	10.00	20.00	295.36 \pm 12.10	312.48 \pm 10.26	2.34 \pm 0.24
#6	6.19	0.50	10.00	10.00	292.88 \pm 6.28	321.68 \pm 8.86	1.42 \pm 0.34
#7	6.30	0.50	10.00	50.00	295.55 \pm 9.97	247.86 \pm 6.81	4.53 \pm 0.33
#8	6.39	0.50	10.00	20.00	294.45 \pm 7.21	291.09 \pm 7.40	2.29 \pm 0.27
#9	6.49	0.50	10.00	10.00	297.72 \pm 7.20	319.15 \pm 8.76	1.60 \pm 0.29
#10	6.59	0.50	10.00	50.00	293.24 \pm 8.20	238.51 \pm 12.41	2.66 \pm 0.43
#11	6.72	0.50	10.00	20.00	330.86 \pm 38.96	305.58 \pm 12.88	1.22 \pm 0.32
#12	6.81	0.50	10.00	10.00	294.28 \pm 9.56	308.23 \pm 12.46	0.63 \pm 0.39
#13	6.91	0.50	10.00	50.00	297.13 \pm 14.61	258.27 \pm 10.99	1.21 \pm 0.50
#14	7.00	0.50	10.00	20.00	294.80 \pm 11.75	297.90 \pm 10.92	0.60 \pm 0.47
#15	7.10	0.50	10.00	10.00	295.51 \pm 9.82	320.00 \pm 9.97	0.45 \pm 0.38
#16	7.19	0.50	10.00	50.00	293.88 \pm 7.58	276.36 \pm 8.88	0.43 \pm 0.33
#17	7.31	0.50	10.00	20.00	295.30 \pm 7.61	311.00 \pm 9.44	0.28 \pm 0.37
#18	7.40	0.50	10.00	10.00	297.07 \pm 9.46	322.18 \pm 9.10	0.40 \pm 0.67

Note: Colored cell indicates deviation from ground truth values. Red means higher and blue means lower than the standard values. Cell with colored text indicates that the deviation is outside the 95% confidence interval of the standard value.

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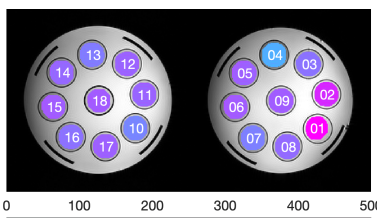
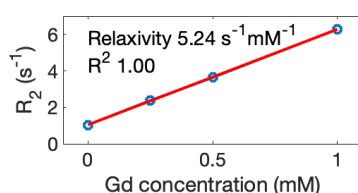
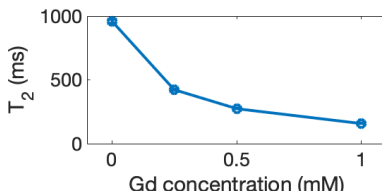
Relaxation rates estimation

- T_1 (ms)



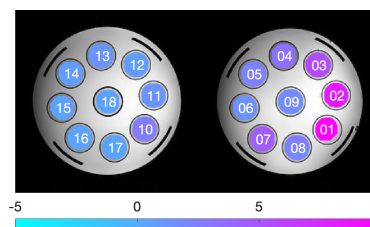
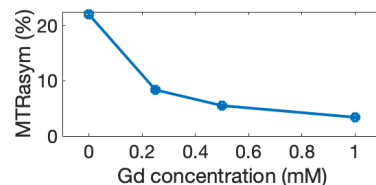
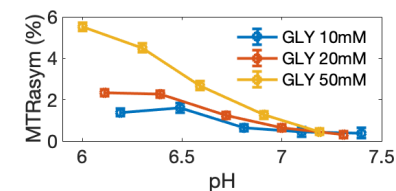
Relaxation rates estimation

- T_2 (ms)



CEST measurements

- MTR_{asym} at 3.0ppm (%)



Report summary