

A Novel Mono-surface Antisymmetric 8Tx/16Rx Coil Array for Parallel Transmit Cardiac MRI in Pigs at 7T

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Table S1. Simulated (yellow) and measured S-Matrix in dB for the mono-surface array loaded with a 20 cm diameter spherical phantom with $\epsilon_r = 59.3$ and $\sigma = 0.79$ S/m.

El.#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	El.#
	-12	-18	-16	-12	-21	-13	-25	-26	-22	-18	-27	-23	-24	-25	-26	-38	1
		-16	-16	-18	-16	-26	-17	-22	-16	-22	-24	-32	-21	-25	-33	-23	2
1	-10		-17	-18	-16	-26	-10	-26	-16	-22	-15	-28	-21	-25	-33	-27	3
2	-17	-10		-16	-24	-16	-37	-13	-22	-10	-31	-12	-29	-25	-34	-34	4
3	-18	-12	-14		-23	-20	-13	-27	-11	-27	-48	-26	-15	-42	-17	-40	5
4	-12	-18	-21	-14		-26	-26	-25	-28	-15	-42	-24	-27	-19	-30	-19	6
5	-20	-13	-16	-27	-21		-9.0	-35	-18	-30	-10	-30	-14	-27	-14	-28	7
6	-13	-20	-27	-16	-20	-21		-12	-32	-9.0	-47	-10	-30	-13	-29	-14	8
7	-24	-32	-12	-28	-16	-28	-21		-10	-30	-23	-29	-10	-31	-9.0	-35	9
8	-32	-24	-28	-12	-28	-16	-30	-22		-10	-40	-14	-43	-12	-37	-11	10
9	-19	-17	-9.0	-23	-15	-23	-11	-25	-15		-9.0	-31	-9.0	-31	-14	-28	11
10	-17	-19	-23	-9.0	-23	-15	-25	-11	-27	-15		-11	-34	-9.0	-40	-12	12
11	-22	-23	-15	-28	-19	-25	-8.0	-29	-16	-40	-17		-8.0	-33	-8.0	-41	13
12	-23	-22	-28	-15	-25	-19	-29	-8.0	-40	-16	-34	-17		-14	-44	-9.0	14
13	-22	-21	-24	-29	-25	-32	-12	-25	-10	-29	-8.0	-40	-15		-10	-31	15
14	-21	-22	-29	-25	-32	-25	-25	-12	-29	-10	-40	-8.0	-30	-15		-15	16
15	-27	-33	-19	-28	-18	-42	-10	-29	-8.0	-41	-20	-29	-8.0	-43	-22		
16	-33	-27	-28	-19	-43	-18	-29	-11	-41	-9.0	-29	-20	-43	-8.0	-39	-22	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

Table S2. Measured S-Matrix in dB for the mono-surface array loaded with a 46 kg cadaver pig.

El.#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	-17															
2	-13	-23														
3	-18	-12	-19													
4	-15	-20	-18	-15												
5	-19	-11	-13	-21	-28											
6	-11	-26	-24	-15	-19	-24										
7	-28	-15	-11	-37	-16	-33	-20									
8	-23	-25	-24	-13	-27	-21	-57	-18								
9	-22	-19	-23	-25	-12	-35	-21	-33	-15							
10	-20	-20	-18	-15	-35	-15	-30	-16	-28	-20						
11	-39	-26	-18	-52	-22	-30	-13	-40	-32	-33	-17					
12	-34	-37	-48	-20	-30	-40	-42	-13	-39	-20	-38	-27				
13	-31	-25	-36	-32	-21	-32	-16	-40	-15	-38	-12	-44	-25			
14	-26	-31	-26	-27	-35	-24	-40	-17	-37	-16	-36	-12	-44	-21		
15	-34	-40	-34	-47	-35	-38	-22	-45	-12	-43	-22	-52	-16	-48	-22	
16	-37	-30	-34	-37	-37	-22	-40	-19	-44	-13	-39	-17	-44	-12	-45	-22

Table S3. Computed optimal amplitudes/phases within the pig body phantom for the 8Tx channels after on-scanner pTx B_1^+ using the vendor integrated pTx shimming algorithm.

pTx Channel #	Magnitude	Phase [°]
T_{x1}	0.40	00.00
T_{x2}	0.41	33.68
T_{x3}	0.42	-98.95
T_{x4}	0.41	-41.85
T_{x5}	0.41	-12.14
T_{x6}	0.41	-69.62
T_{x7}	0.40	-33.25
T_{x8}	0.41	-19.95