Table S1. Voltages (U_i, mV) and delays (t_i, ns) of pulses along the active conductor of CC 1.

Node		***V*5**						***V*10**				
i	1	2	3	1	2	3	4	5	6	7	8	9
U_i	132	151	174	33	38	43	38	43	49	43	50	57
t_i	0.09	0.11	0.13	1.02	1.08	1.11	1.17	1.23	1.29	1.35	1.38	1.44

Table S2. Voltages (U_i, mV) and delays (t_i, ns) of pulses along the active conductor of CC 2.

Node		***V*5**						***V*10**				
i	1	2	3	1	2	3	4	5	6	7	8	9
U_i	107	122	141	42	48	55	23	26	31	40	46	53
t_i	0.09	0.11	0.13	1.45	1.55	1.65	1.79	1.85	1.95	2.1	2.18	1.26

Table S3. Voltages (U_i, mV) and delays (t_i, ns) of pulses along the active conductor of CC 3.

Node		***V*5**						***V*10**				
i	1	2	3	1	2	3	4	5	6	7	8	9
U_i	107	122	141	43	49	56	24	27	31	41	47	53
t_i	0.09	0.11	0.13	1.45	1.55	1.65	1.75	1.85	1.9	2.05	2.17	1.26
						***V*15**						
U_1	U_2	U_3	U_4	U_5	U_6	U_7	U_8	U_9	U_{10}	U_{11}	U_{12}	U_{13}	U_{14}
11	12.3	14	6.1	6.7	7.7	10.7	11.9	13.5	12.4	13.8	17.3	6.6	9
U_{15}	U_{16}	U_{17}	U_{18}	U_{19}	U_{20}	U_{21}	U_{22}	U_{23}	U_{24}	U_{25}	U_{26}	U_{27}	
11.3	11.5	14.7	15.3	14.9	20.3	22.3	10.6	10.4	13.1	14.2	17	18.3	
t_1	t_2	t_3	t_4	t_5	t_6	t_7	t_8	t_9	t_{10}	t_{11}	t_{12}	t_{13}	t_{14}
13.4	13.6	13.8	14.1	14.3	14.5	14.7	14.9	15.1	15.5	15.7	15.8	16.2	16.4
t_{15}	t_{16}	t_{17}	t_{18}	t_{19}	t_{20}	t_{21}	t_{22}	t_{23}	t_{24}	t_{25}	t_{26}	t_{27}	
16.5	16.9	17.1	17.3	17.6	17.8	18	18.3	18.5	18.7	19	19.2	19.4	

Table S4. Voltages (U_i, mV) and delays (t_i, ns) of pulses along the active conductor of CC 4.

Node		***V*5**						***V*10**				
i	1	2	3	1	2	3	4	5	6	7	8	9
U_i	132	151	175	34	39	44	39	44	51	45	51	58
t_i	0.09	0.11	0.13	1.03	1.08	1.13	1.19	1.24	1.29	1.34	1.4	1.45
						***V*15**						
U_1	U_2	U_3	U_4	U_5	U_6	U_7	U_8	U_9	U_{10}	U_{11}	U_{12}	U_{13}	U_{14}
8.5	9.6	11.1	9.7	11	12.6	11	12.7	14.6	9.7	11	12.6	12.7	12.6
U_{15}	U_{16}	U_{17}	U_{18}	U_{19}	U_{20}	U_{21}	U_{22}	U_{23}	U_{24}	U_{25}	U_{26}	U_{27}	
14.6	12.7	14.8	16.6	11	14.8	14.9	12.5	18.1	18.9	16.4	20.2	19.6	
t_1	t_2	t_3	t_4	t_5	t_6	t_7	t_8	t_9	t_{10}	t_{11}	t_{12}	t_{13}	t_{14}
16.2	16.4	16.6	16.8	17	17.3	17.5	17.6	17.9	18.7	19	19.2	19.4	19.6
t_{15}	t_{16}	t_{17}	t_{18}	t_{19}	t_{20}	t_{21}	t_{22}	t_{23}	t_{24}	t_{25}	t_{26}	t_{27}	
19.8	19.9	20.2	20.4	21.1	21.4	21.6	22	22.1	22.2	22.4	22.7	22.9	

Table S5. Optimization results for a 3-conductor MF with a circular CS (where SC is stopping criteria).

N	φ_1	φ_2	U_{max}	time	SC	φ_1	φ_2	U_{max}	time	SC
	N_{it}=500					N_{it}=1000				
1	50.6	348.8	0.714	651	I	51.1	157.4	0.7	1299	I
2	51	145.9	0.677	664	I	50.8	154	0.697	1303	I
3	50.5	349.8	0.714	650	I	50.4	149.9	0.701	1308	I
4	50.8	269.4	0.807	859	I	48.2	343.4	0.729	1312	I
5	50.7	344	0.722	674	I	48	304.3	0.772	1309	I
6	50.6	149.8	0.687	648.6	I	50.9	349.8	0.716	1298	I
7	26.4	139.7	0.713	651.5	I	51	349.4	0.715	1301	I
8	50.8	150.9	0.69	652	I	50.7	150.2	0.686	1301	I
9	51.2	258.1	0.811	649	I	49.9	346	0.722	1306	I
10	50.4	162.4	0.711	650	I	50.8	153.4	0.694	1313	I
	N_{it}=2500					N_{it}=5000				
1	50.4	149.5	0.706	2195	Q	50.9	152.8	0.689	1685	Q
2	50.7	139.8	0.704	2095	Q	46.9	138.6	0.665	4060	Q
3	49.8	346.2	0.727	2461	Q	35.9	139.4	0.694	4614	P
4	50.8	140.1	0.703	2705	Q	51.1	143	0.668	3494	Q
5	49.9	345.2	0.72	2048	Q	50.9	146.9	0.676	6790	I
6	51.1	162.6	0.713	3343	I	51	138.8	0.652	2134	Q
7	51	149.3	0.685	3330	I	50.8	138.7	0.655	4330	P
8	51	140.5	0.705	2807	Q	50.8	349.2	0.714	4832	Q
9	48.9	341.7	0.729	3315	I	50.9	138.7	0.654	6906	I
10	50.5	344.5	0.722	3401	I	50.4	344.8	0.723	6739	I

Table S6. Optimization results for a 4-conductor MF with a circular CS (where SC is stopping criteria).

N	r_{P1}	r_{P2}	r_{P3}	r_{td}	R_{P1}	R_{P2}	R_{P3}	φ_1	φ_2	φ_3	U_{max}	time	SC
						N_{it}=500							
1	0.876	0.529	0.853	0.59	2.436	2.764	2.395	37.8	128.4	330.2	0.53	1483	I
2	0.576	0.678	0.884	0.418	2.445	2.3	2.241	44.1	137.4	189.3	0.65	1491	I
3	0.506	0.867	0.873	0.583	2.697	2.437	2.419	47.3	140.6	190.2	0.63	1505	I
4	0.6	0.618	0.539	0.599	2.639	2.521	2.099	50	135.5	181.4	0.7	1532	I
5	0.841	0.594	0.567	0.338	2.109	2.087	1.874	31.7	146.1	345.2	0.7	1530	I
						N_{it}=1000							
1	0.812	0.622	0.889	0.316	2.097	2.365	2.134	33.9	136.3	314.9	0.6	2534	I
2	0.863	0.614	0.863	0.335	2.181	2.3	2.126	40.6	138.8	339.4	0.61	2574	I
3	0.847	0.708	0.787	0.261	2.062	2.268	1.992	43.4	143.5	352.6	0.68	2694	I
4	0.852	0.725	0.831	0.206	1.992	1.995	1.992	25.8	160.8	331.7	0.74	2729	I
5	0.618	0.794	0.703	0.654	2.656	2.555	2.293	58.2	158	225.4	0.6	2824	I
						N_{it}=2500							
1	0.866	0.714	0.864	0.635	2.482	2.465	2.429	36.9	150.2	342.8	0.58	6479	I
2	0.673	0.652	0.897	0.677	2.342	2.293	2.5	40.4	151.4	343	0.64	6981	I
3	0.694	0.872	0.808	0.584	2.386	2.397	2.412	53.3	141.9	356.3	0.62	7670	I
4	0.59	0.547	0.824	0.534	2.393	2.531	2.295	33	130.9	343.5	0.62	9015	I
5	0.821	0.523	0.833	0.607	2.415	2.795	2.423	25.2	128.1	181.2	0.67	6599	I

						N_{it}=5000							
1	0.63	0.639	0.9	0.692	2.416	2.719	2.517	40.3	161.4	334.2	0.67	14592	I
2	0.873	0.718	0.9	0.558	2.361	2.482	2.383	40.6	145.6	348.1	0.55	17919	I
3	0.51	0.678	0.876	0.539	2.651	2.337	2.354	60.3	141.7	289.4	0.58	22559	I
4	0.713	0.542	0.89	0.463	2.389	2.639	2.291	38.5	131.2	341.6	0.59	14376	I
5	0.718	0.808	0.899	0.682	2.341	2.582	2.506	27.1	167	320.8	0.59	18403	I

Table S7. Optimization results for a 3-conductor MF with a circular CS with insulation around the conductors (where SC is stopping criteria)

N	r_{P1}	r_{P2}	r_{tdA}	r_{tdP1}	r_{tdP2}	r_{tdR}	R_{P1}	R_{P2}	φ_1	φ_2	U_{max}	time	SC
						N_{it}=500							
1	0.518	0.549	0.284	0.465	0.288	0.648	2.61	2.463	38	260	0.83	4568	I
2	0.879	0.852	0.79	0.978	0.589	0.582	3.393	3.617	25.7	280.8	0.91	4455	I
3	0.531	0.651	0.415	0.592	0.388	0.516	2.811	2.965	40.4	338.8	0.84	4560	I
4	0.553	0.642	0.363	0.371	0.553	0.637	2.556	2.926	21.6	260	0.87	4530	I
5	0.882	0.717	0.472	0.597	0.575	0.499	2.927	2.93	30	260	0.83	4512	I
						N_{it}=1000							
1	0.744	0.679	0.175	0.23	0.231	0.649	2.817	2.756	46	281.9	0.81	9200	I
2	0.574	0.539	0.484	0.398	0.742	0.599	2.539	3.257	22.8	283.3	0.84	9210	I
3	0.666	0.678	0.349	0.551	0.495	0.594	2.881	2.801	39.1	260	0.84	9140	I
4	0.84	0.657	0.42	0.54	0.56	0.574	2.985	2.848	31.2	280.6	0.84	9110	I
5	0.703	0.841	0.772	0.963	0.675	0.443	3.119	2.912	13.7	260	0.87	9133	I
						N_{it}=2500							
1	0.582	0.757	0.576	0.544	0.898	0.458	2.579	3.158	23.8	246.5	0.8	14075	I
2	0.776	0.655	0.593	0.817	0.713	0.59	3.138	3.127	30	288.2	0.79	15242	I
3	0.69	0.582	0.592	0.797	0.734	0.528	3.002	2.772	27.4	213	0.83	16992	I
4	0.797	0.518	0.755	0.955	0.896	0.68	3.453	3.028	21.4	227	0.81	18699	I
5	0.602	0.513	0.716	0.942	0.752	0.691	3.272	3.15	17.2	271.1	0.8	20222	I
						N_{it}=5000							
1	0.706	0.62	0.648	0.852	0.708	0.694	3.396	3.076	28.9	300	0,79	32947	I
2	0.656	0.701	0.389	0.534	0.633	0.5	2.711	2.798	39.4	193.6	0.79	29278	I
3	0.841	0.53	0.67	0.895	0.979	0.675	3.397	3.134	32.2	235.6	0.78	42332	I
4	0.845	0.526	0.761	0.962	0.919	0.678	3.474	3.254	24.2	280.3	0.78	33748	I
5	0.751	0.556	0.658	0.874	0.71	0.641	3.353	2.992	27.4	299.1	0.79	51281	I