

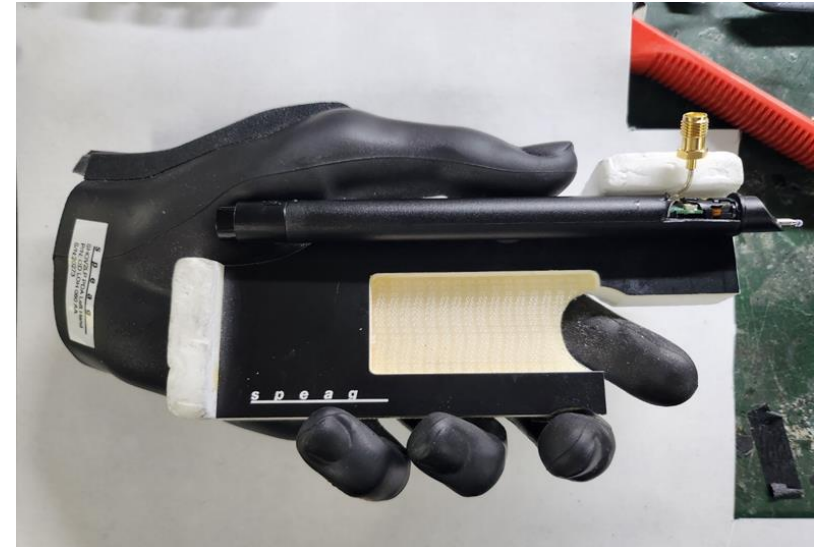
1. Antenna Configuration



#1

#2

Normal



Hand Phantom

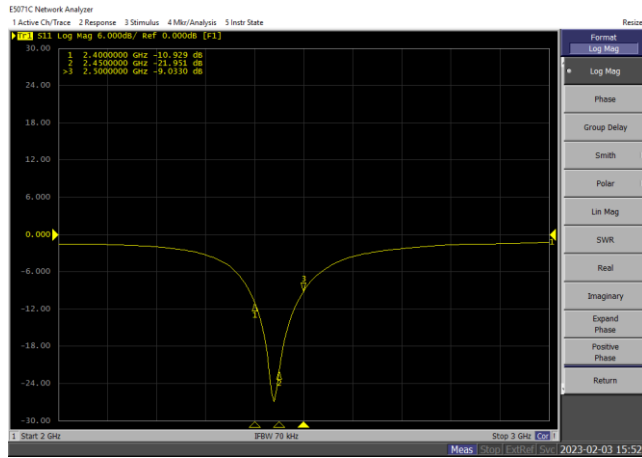
2. Tuned Antenna Configuration



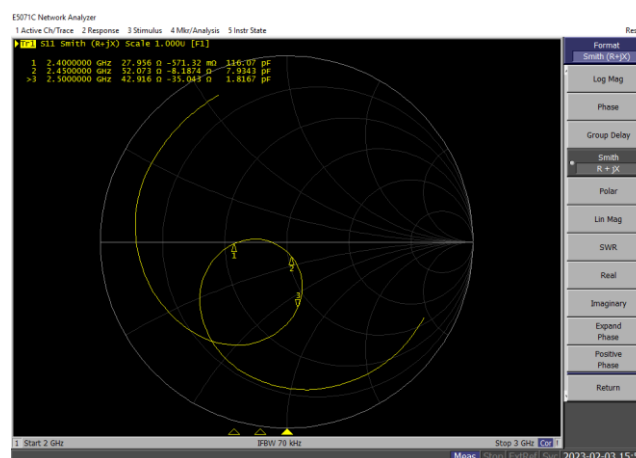
Z1 : 1 pF
Z2 : 0.75 pF
Z3 : 1 pF
Z4 : 1.2 pF
Z5 : 1.2 pF

2-1. Tuned Measurement Data #1 (normal)

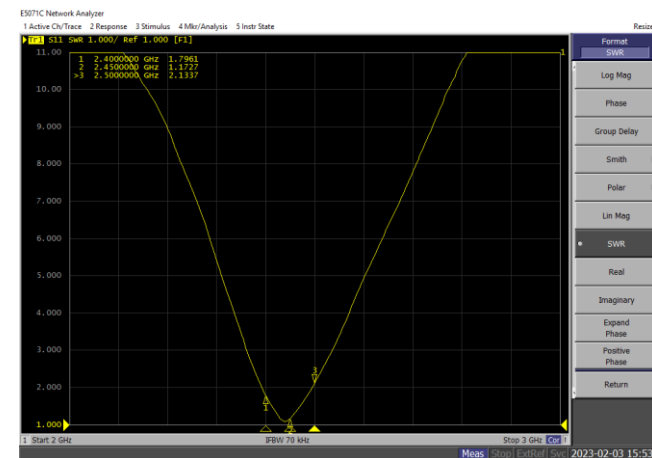
S11



SC



SWR

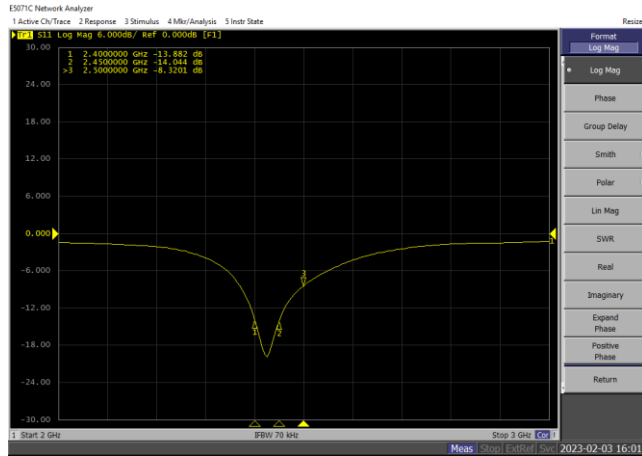


Efficiency

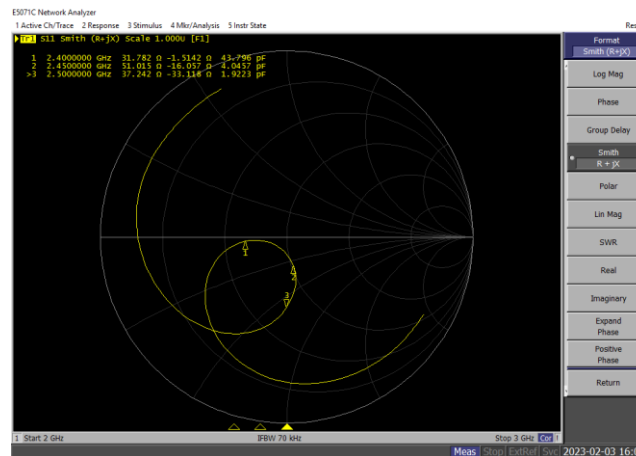
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency [dB]	-5.14	-5.05	-4.90	-4.74	-4.65	-4.52	-4.33	-4.25	-4.34	-4.20	-4.27	-4.25	-4.34	-4.38	-4.31	-4.46	-4.71	-5.31	-5.58	-5.66
Efficiency [%]	30.6	31.3	32.4	33.6	34.3	35.3	36.9	37.6	36.8	38.0	37.4	37.5	36.8	36.5	37.1	35.8	33.8	29.4	27.7	27.2
TRG _θ [dB]	-6.37	-6.26	-6.08	-5.92	-5.82	-5.69	-5.49	-5.36	-5.47	-5.33	-5.37	-5.33	-5.43	-5.46	-5.37	-5.52	-5.72	-6.37	-6.62	-6.65
Gain _{θ Peak} [dB]	-2.58	-2.37	-2.24	-2.07	-1.99	-1.75	-1.22	-0.99	-1.07	-0.88	-0.80	-0.72	-0.86	-0.67	-0.75	-0.81	-0.98	-1.47	-1.73	-1.91
Gain _{θ Min} [dB]	-26.61	-26.20	-25.84	-25.42	-23.83	-22.75	-22.71	-21.35	-21.31	-21.29	-22.31	-20.71	-23.89	-21.60	-22.39	-24.28	-23.89	-26.87	-25.63	-21.30
TRG _φ [dB]	-11.20	-11.17	-11.12	-10.96	-10.91	-10.78	-10.63	-10.71	-10.72	-10.59	-10.77	-10.85	-10.85	-10.95	-10.95	-11.11	-11.53	-11.97	-12.30	-12.54
Gain _{φ Peak} [dB]	-4.03	-4.03	-3.69	-3.46	-3.23	-2.99	-2.96	-2.90	-2.63	-2.69	-2.89	-2.70	-2.75	-2.71	-2.64	-3.00	-3.47	-3.88	-4.19	-4.46
Gain _{φ Min} [dB]	-27.72	-27.44	-25.81	-25.09	-26.81	-31.64	-27.44	-28.11	-31.68	-30.34	-41.47	-31.59	-33.18	-37.65	-40.60	-36.29	-41.33	-41.12	-48.74	-31.01
UHRG [dB]	-8.53	-8.50	-8.37	-8.25	-8.22	-8.10	-7.95	-7.92	-8.02	-7.93	-8.07	-8.08	-8.19	-8.25	-8.21	-8.40	-8.71	-9.30	-9.59	-9.70
UHRG/TRG [%]	45.7	45.2	45.0	44.6	43.9	43.8	43.5	42.9	42.9	42.4	41.7	41.4	41.2	41.0	40.8	40.4	39.8	39.9	39.7	39.4
H-Plane	-8.94	-8.94	-8.76	-8.59	-8.65	-8.50	-8.35	-8.30	-8.48	-8.16	-8.29	-8.30	-8.41	-8.48	-8.41	-8.60	-8.87	-9.51	-9.78	-9.96
E1-Plane, AVG [dB]	-6.83	-6.71	-6.59	-6.39	-6.33	-6.17	-5.94	-5.89	-5.94	-5.77	-5.77	-5.72	-5.85	-5.84	-5.78	-6.01	-6.13	-6.82	-7.04	-7.04
E2-Plane, AVG [dB]	-6.33	-6.18	-5.97	-5.74	-5.69	-5.57	-5.33	-5.21	-5.32	-5.18	-5.20	-5.16	-5.31	-5.29	-5.25	-5.36	-5.60	-6.16	-6.38	-6.47
Peak Gain [dB]	-0.54	-0.43	-0.08	0.26	0.39	0.68	1.01	1.17	1.23	1.32	1.29	1.41	1.31	1.44	1.42	1.24	0.96	0.50	0.22	0.01
Directivity [dB]	4.60	4.62	4.81	5.00	5.03	5.21	5.34	5.42	5.57	5.52	5.56	5.67	5.64	5.82	5.73	5.70	5.67	5.81	5.80	5.67
Minimum Gain [dB]	-21.93	-22.58	-22.07	-21.45	-21.48	-20.84	-20.04	-19.51	-18.02	-20.65	-20.46	-20.05	-19.08	-18.03	-18.06	-19.43	-19.78	-23.40	-22.91	-19.38
Average Efficiency	-4.65 dB		34.31 %																	

2-4. Tuned Measurement Data #1 (Handphantom)

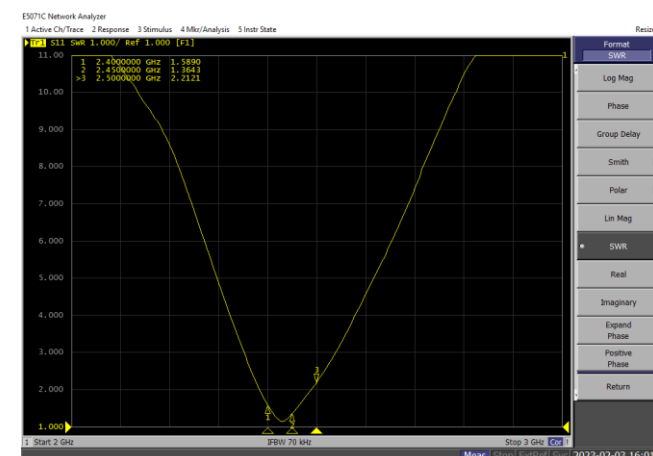
S11



SC



SWR



Efficiency

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2460	2465	2470	2475	2480	2485	2490	2497
Efficiency [dB]	-7.15	-7.05	-7.01	-6.86	-6.78	-6.67	-6.44	-6.38	-6.51	-6.41	-6.56	-6.52	-6.59	-6.61	-6.59	-6.80	-7.02	-7.60	-7.73	-7.81
Efficiency [%]	19.3	19.7	19.9	20.6	21.0	21.6	22.7	23.0	22.3	22.9	22.1	22.3	21.9	21.8	21.9	20.9	19.8	17.4	16.9	16.6
TRG _θ [dB]	-8.55	-8.46	-8.38	-8.22	-8.14	-8.06	-7.80	-7.71	-7.86	-7.75	-7.93	-7.86	-7.96	-8.00	-7.96	-8.21	-8.42	-9.07	-9.17	-9.23
Gain _{θ Peak} [dB]	-2.19	-2.15	-2.17	-1.95	-1.77	-1.75	-1.69	-1.26	-1.66	-1.58	-1.69	-1.76	-1.82	-1.65	-1.69	-2.02	-2.26	-2.92	-2.99	-3.24
Gain _{θ Min} [dB]	-22.44	-24.60	-24.70	-26.09	-25.93	-25.78	-25.98	-35.12	-31.94	-30.69	-29.19	-27.50	-26.70	-26.30	-25.05	-22.67	-23.99	-24.77	-21.53	-23.01
TRG _φ [dB]	-12.72	-12.62	-12.67	-12.55	-12.48	-12.29	-12.15	-12.16	-12.25	-12.15	-12.26	-12.28	-12.25	-12.25	-12.26	-12.37	-12.64	-13.03	-13.23	-13.36
Gain _{φ Peak} [dB]	-5.65	-5.56	-5.55	-5.80	-5.40	-5.26	-5.16	-5.28	-5.07	-5.06	-5.27	-5.22	-5.31	-5.44	-5.37	-5.56	-6.11	-6.49	-6.63	-6.99
Gain _{φ Min} [dB]	-30.98	-30.52	-34.16	-31.54	-30.08	-36.29	-35.40	-47.95	-33.70	-36.01	-34.42	-30.44	-42.04	-33.51	-29.67	-33.55	-28.32	-30.21	-29.72	-31.25
UHRG [dB]	-11.04	-10.91	-10.85	-10.71	-10.63	-10.50	-10.24	-10.16	-10.24	-10.17	-10.32	-10.26	-10.33	-10.34	-10.30	-10.49	-10.72	-11.31	-11.43	-11.48
UHRG/TRG [%]	40.8	41.1	41.2	41.2	41.2	41.4	41.7	41.8	42.4	42.1	42.1	42.3	42.2	42.4	42.5	42.7	42.6	42.6	42.7	42.9
H-Plane	-9.51	-9.46	-9.32	-9.28	-9.15	-9.10	-8.73	-8.80	-8.88	-8.80	-8.96	-8.89	-9.03	-9.00	-8.96	-9.17	-9.48	-10.09	-10.12	-10.19
E1-Plane, AVG [dB]	-9.52	-9.36	-9.33	-9.11	-8.90	-8.70	-8.52	-8.25	-8.49	-8.26	-8.41	-8.19	-8.16	-8.22	-8.14	-8.30	-8.46	-9.03	-9.03	-9.08
E2-Plane, AVG [dB]	-8.60	-8.43	-8.47	-8.34	-8.34	-8.20	-7.98	-7.95	-8.16	-8.04	-8.29	-8.33	-8.46	-8.55	-8.54	-8.82	-9.08	-9.84	-9.98	-9.97
Peak Gain [dB]	-0.90	-0.80	-0.84	-0.62	-0.57	-0.42	-0.37	-0.08	-0.40	-0.32	-0.38	-0.46	-0.56	-0.45	-0.49	-0.79	-0.93	-1.55	-1.67	-1.88
Directivity [dB]	6.24	6.24	6.17	6.24	6.21	6.24	6.07	6.29	6.11	6.09	6.18	6.07	6.03	6.16	6.10	6.01	6.09	6.06	6.06	5.93
Minimum Gain [dB]	-17.68	-18.24	-19.11	-18.57	-20.01	-19.37	-19.39	-20.27	-20.46	-19.27	-19.92	-20.10	-19.07	-19.12	-19.81	-18.72	-18.55	-20.79	-19.20	-19.80
Average Efficiency	-6.83 dB		20.73 %																	

2-3. #1 Antenna Radiation Patterns

