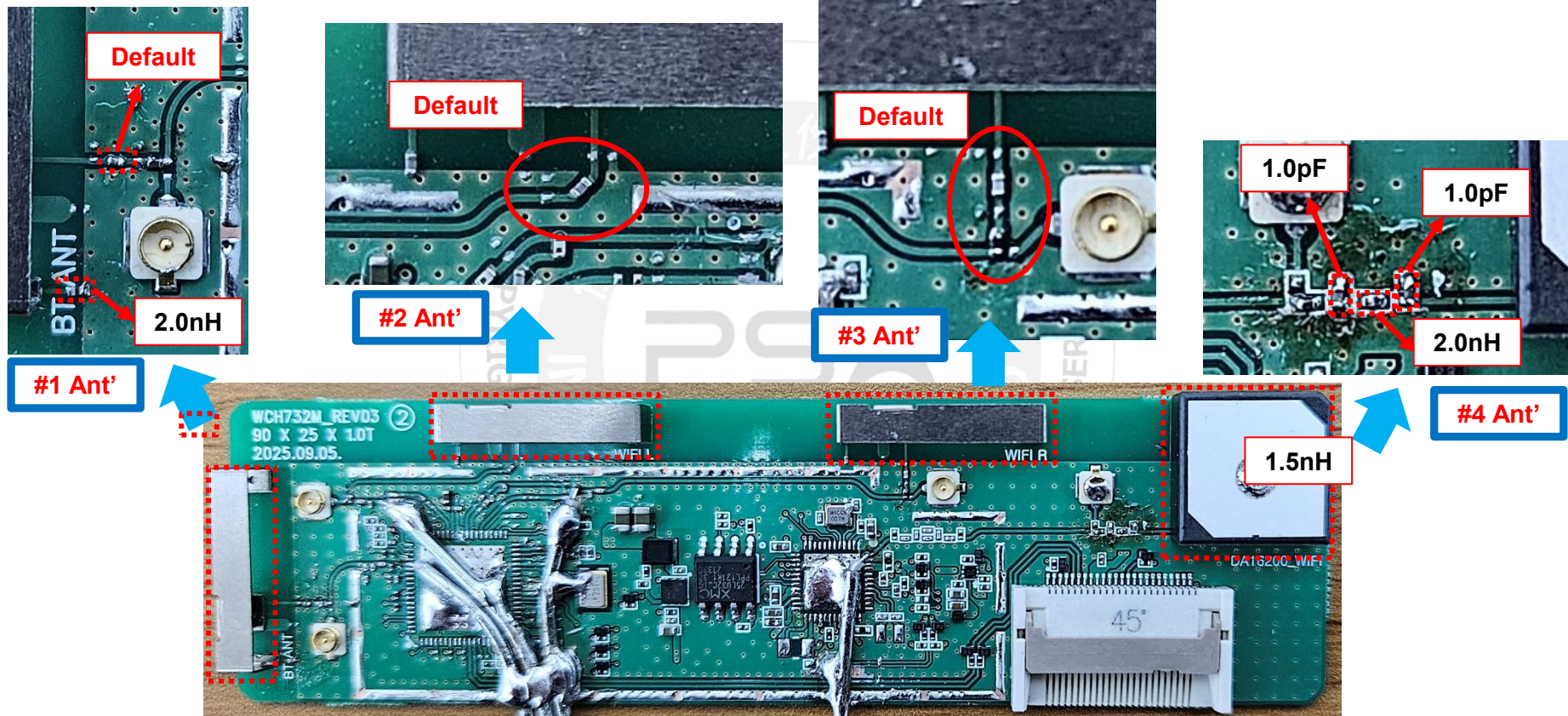


[COM720A] Antenna Passive Performance Review

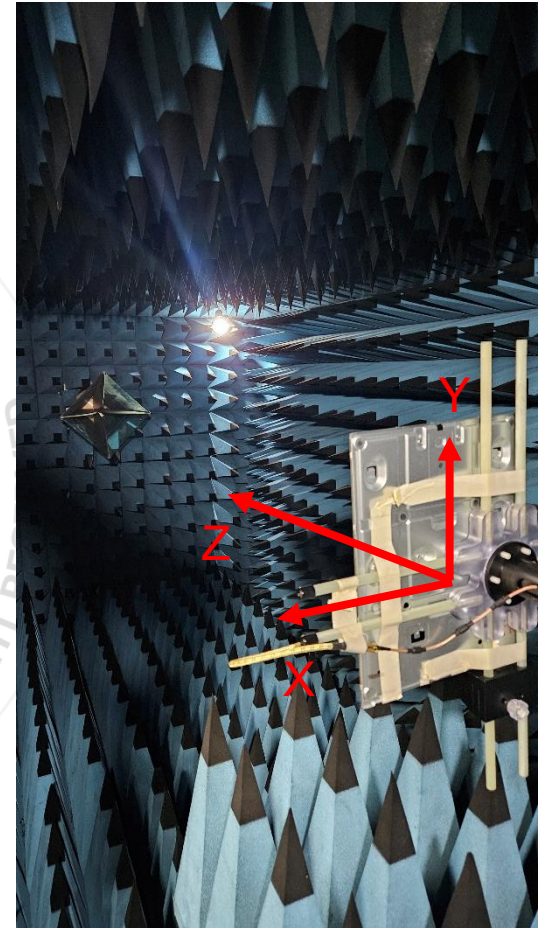
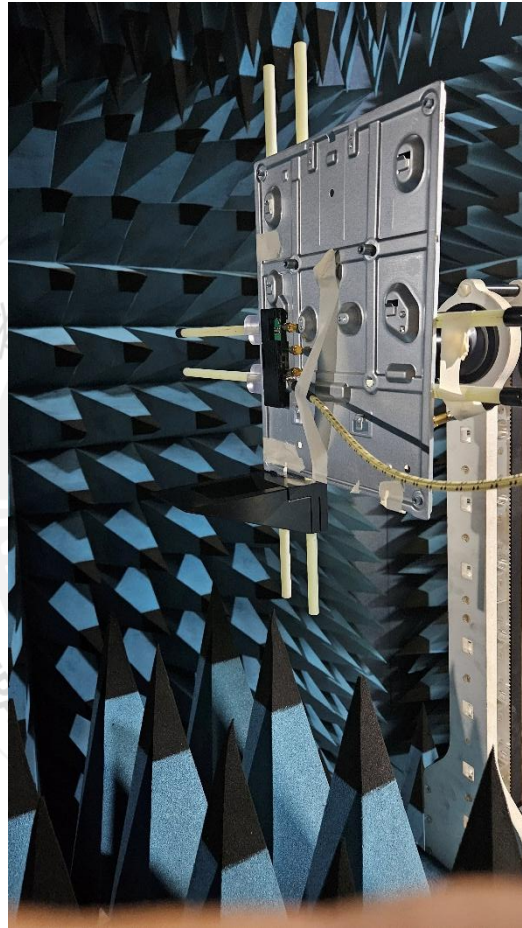
[250911입고 PCB Patch 안테나 적용]

INPAQ Technology Co., Ltd.
Last updated in 2025.9.13
Daniel

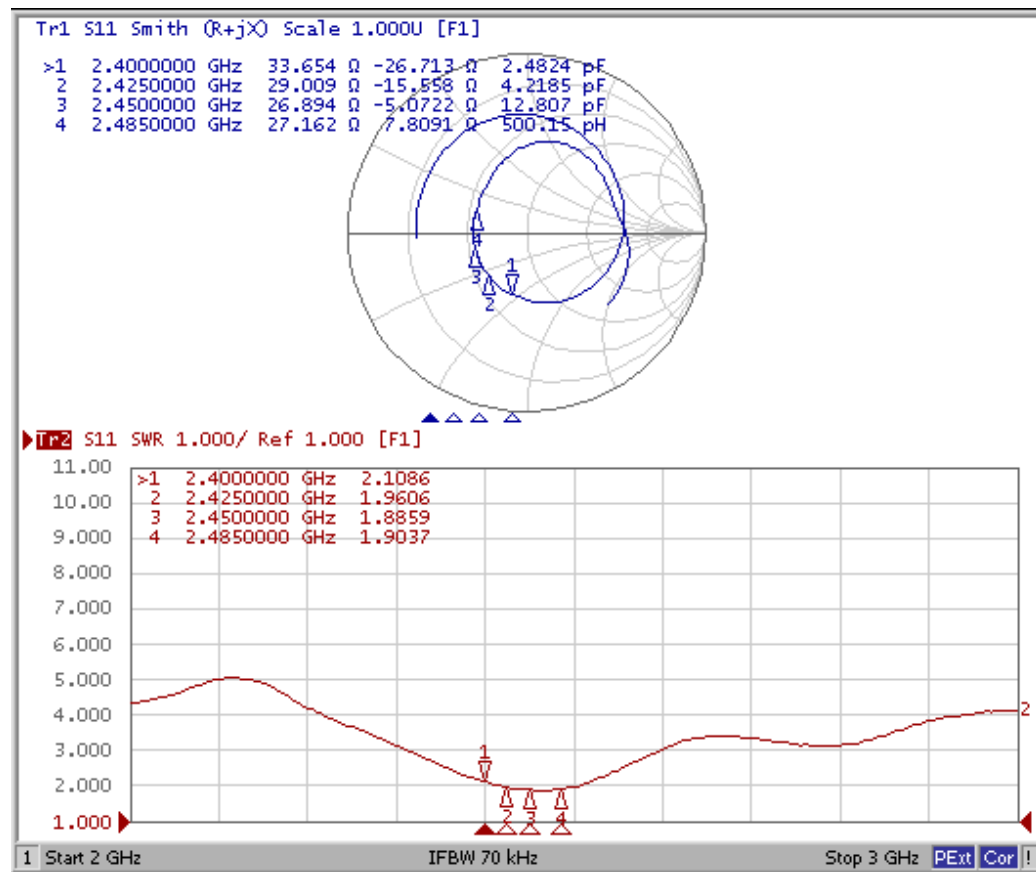
Test PCB(250911) & Matching Value



Test Position



Smith Chart & VSWR _ #1 Ant'

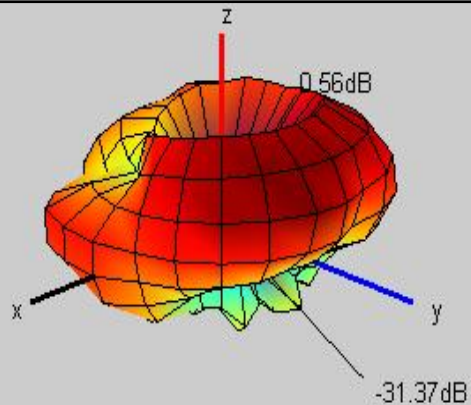


3D Gain data_#1 Ant'

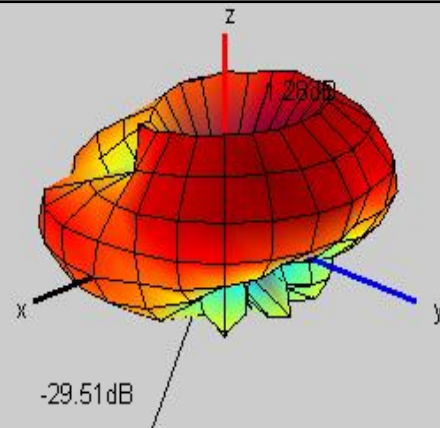
	1	2	3	4														
Frequency [MHz]	2400	2425	2450	2485														
Efficiency [dB]	-7.73	-6.49	-6.35	-6.04														
Efficiency [%]	16.9	22.4	23.2	24.9														
TRG _θ [dB]	-9.44	-8.38	-8.45	-7.90														
Gain _{θ Peak} [dBi]	0.49	1.10	0.10	1.18														
Gain _{θ Min} [dBi]	-45.14	-38.69	-38.98	-49.05														
TRG _φ [dB]	-12.62	-11.01	-10.52	-10.60														
Gain _{φ Peak} [dBi]	-3.91	-1.74	-0.87	-1.11														
Gain _{φ Min} [dBi]	-40.63	-35.51	-50.89	-61.06														
UHRG [dB]	-8.40	-7.20	-7.01	-6.67														
UHRG/TRG [%]	85.6	84.9	85.9	86.4														
H-Plane	-11.96	-10.23	-10.16	-9.62														
E1-Plane, AVG [dB]	-10.54	-9.67	-10.28	-8.91														
E2-Plane, AVG [dB]	-8.42	-7.40	-7.56	-7.33														
Peak Gain [dBi]	0.56	1.28	1.43	1.32														
Directivity [dB]	8.29	7.77	7.78	7.36														
Minimum Gain [dBi]	-31.37	-29.51	-26.60	-25.32														
Test Condition	FS																	
Antenna Type																		
Average Efficiency	-6.61 dB, 21.85 %																	

Radiation Pattern _ #1 Ant'

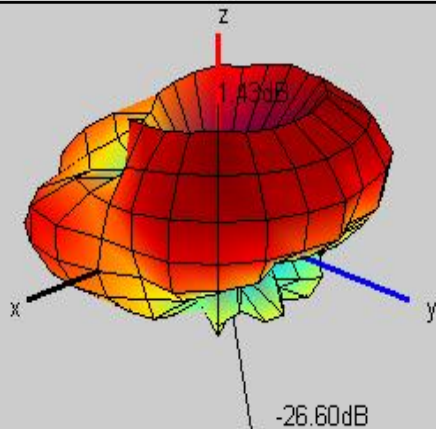
2400MHz



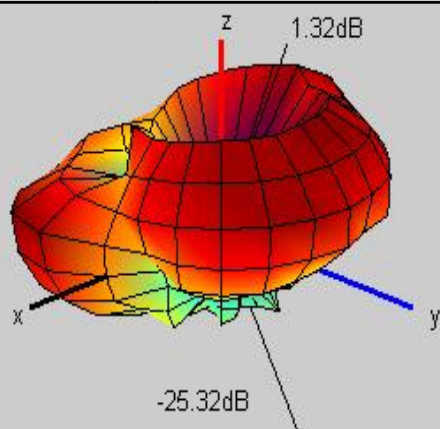
2425MHz



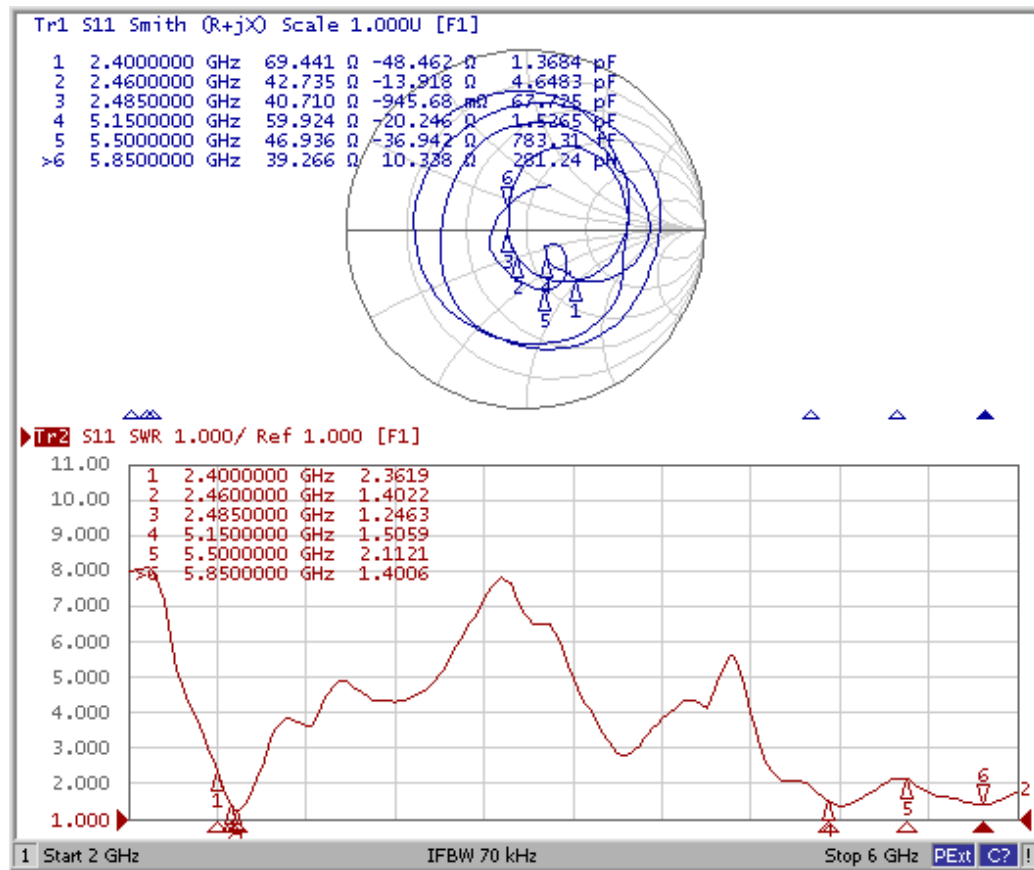
2450MHz



2485MHz



Smith Chart & VSWR _#2 Ant'

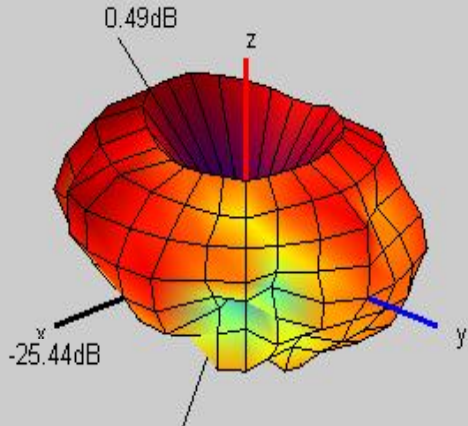


3D Gain data_#2 Ant'

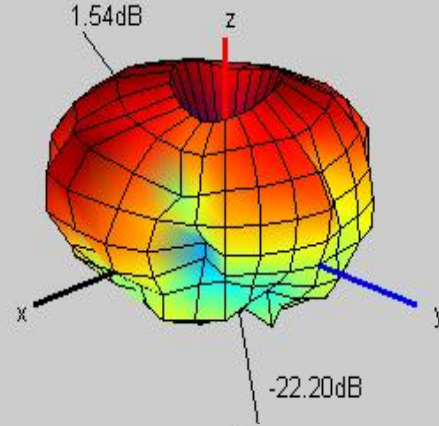
	1	2	3	4	5	6	7	8	9	10	11	12							
Frequency [MHz]	2400	2425	2450	2485	5150	5250	5350	5450	5550	5650	5750	5850							
Efficiency [dB]	-6.79	-6.43	-5.94	-5.61	-6.42	-6.11	-6.77	-6.80	-6.63	-6.89	-6.92	-6.85							
Efficiency [%]	20.9	22.7	25.5	27.5	22.8	24.5	21.0	20.9	21.7	20.4	20.3	20.7							
TRG _θ [dB]	-9.76	-9.27	-8.57	-8.14	-9.10	-8.77	-9.80	-10.18	-10.54	-10.88	-10.61	-10.69							
Gain _{θ Peak} [dBi]	-0.03	-0.45	0.04	0.31	0.08	1.44	1.44	1.03	0.39	0.56	0.65	-0.64							
Gain _{θ Min} [dBi]	-48.66	-42.10	-36.89	-32.29	-37.11	-39.18	-40.24	-43.26	-54.69	-48.76	-45.81	-45.59							
TRG _φ [dB]	-9.84	-9.62	-9.37	-9.17	-9.79	-9.51	-9.76	-9.47	-8.89	-9.11	-9.34	-9.16							
Gain _{φ Peak} [dBi]	-1.12	-0.65	-0.03	0.27	0.92	1.21	1.00	1.03	1.07	0.77	-0.27	-0.01							
Gain _{φ Min} [dBi]	-42.05	-39.54	-47.59	-38.49	-41.68	-43.75	-54.22	-34.27	-35.19	-41.36	-51.71	-34.16							
UHRG [dB]	-7.81	-7.45	-6.81	-6.36	-6.83	-6.51	-7.15	-7.48	-8.89	-8.04	-8.32	-7.94							
UHRG/TRG [%]	79.0	79.0	81.9	84.2	91.0	91.2	91.5	85.5	59.3	76.8	72.4	77.8							
H-Plane	-11.33	-10.55	-10.36	-10.67	-11.32	-11.55	-12.95	-13.78	-10.46	-11.74	-10.09	-11.01							
E1-Plane, AVG [dB]	-13.73	-13.70	-12.21	-10.53	-5.70	-4.78	-5.02	-5.56	-6.98	-6.60	-6.47	-7.17							
E2-Plane, AVG [dB]	-6.92	-6.37	-5.78	-5.79	-11.96	-12.50	-12.11	-12.22	-12.17	-13.45	-13.40	-12.17							
Peak Gain [dBi]	0.49	1.10	1.65	1.54	1.48	1.52	1.49	1.38	1.31	1.10	1.02	1.21							
Directivity [dB]	7.28	7.53	7.59	7.15	7.90	7.63	8.26	8.18	7.94	7.99	7.95	8.06							
Minimum Gain [dBi]	-25.44	-22.00	-22.63	-22.20	-32.69	-30.03	-32.33	-29.69	-21.97	-22.44	-32.89	-27.27							
Test Condition	FS																		
Antenna Type																			
Average Efficiency	-6.49 dB, 22.41 %																		

Radiation Pattern _ #2 Ant'

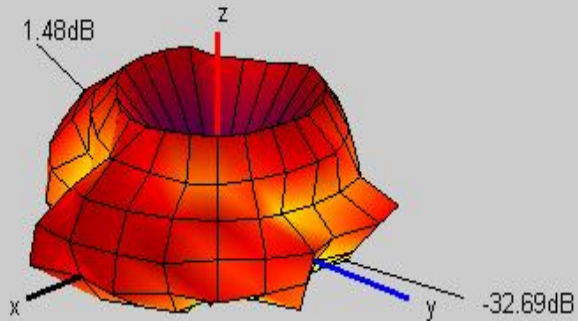
2400MHz



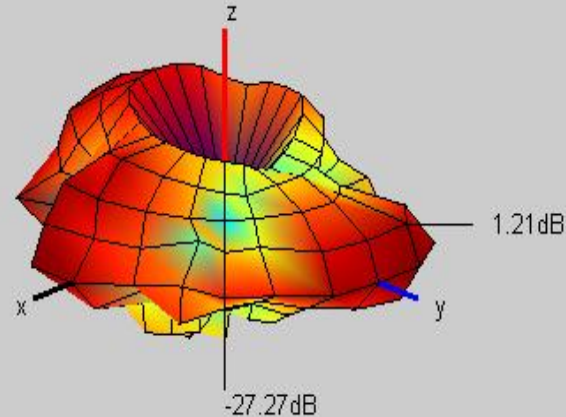
2450MHz



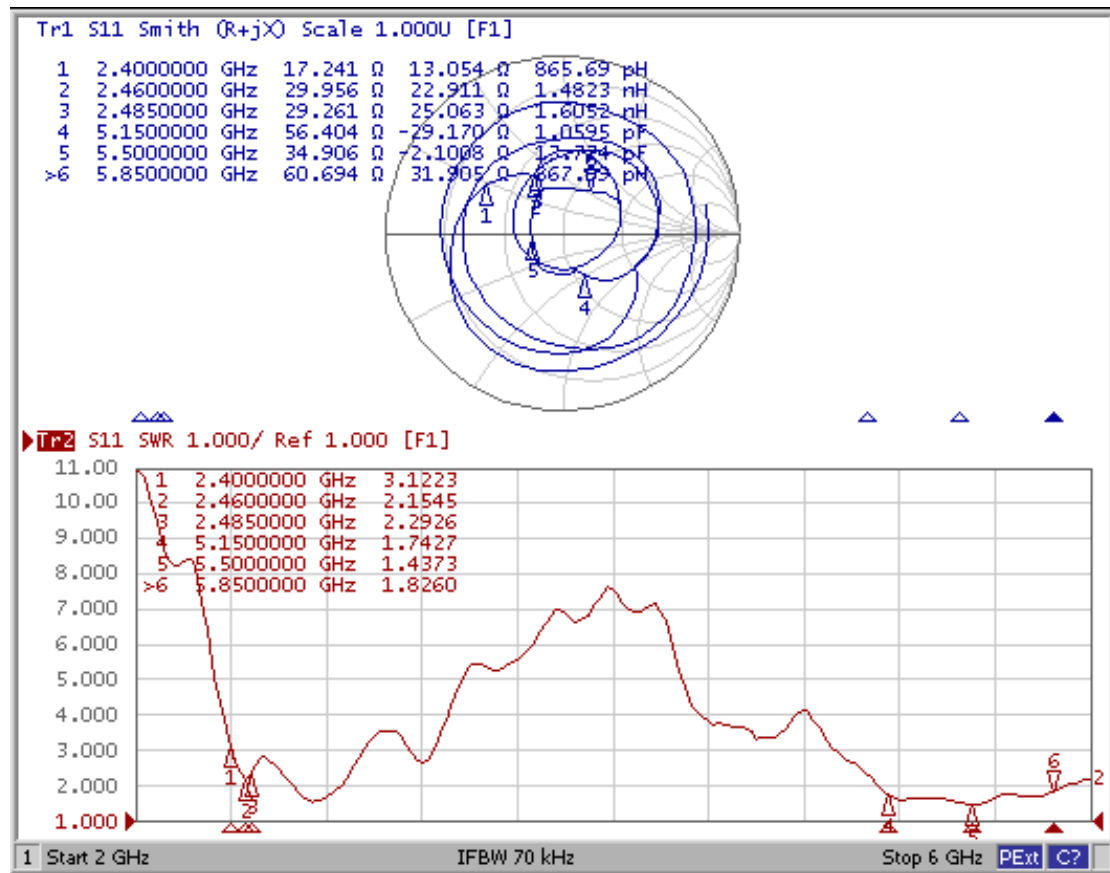
5150MHz



5850MHz



Smith Chart & VSWR _#3 Ant'

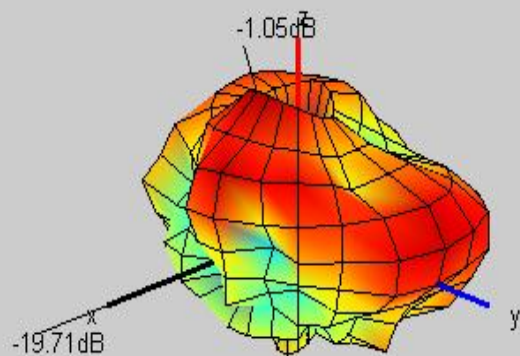


3D Gain data_#3 Ant'

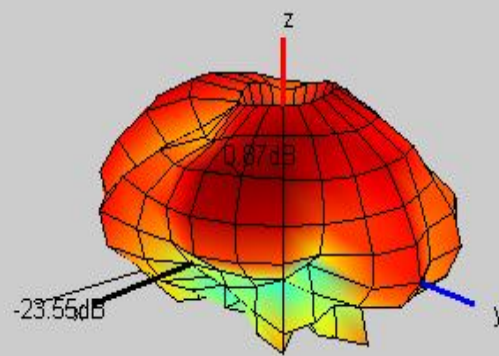
	1	2	3	4	5	6	7	8	9	10	11	12							
Frequency [MHz]	2400	2425	2450	2485	5150	5250	5350	5450	5550	5650	5750	5850							
Efficiency [dB]	-7.81	-6.62	-6.36	-6.53	-6.84	-6.90	-6.85	-6.70	-6.49	-6.26	-6.47	-6.41							
Efficiency [%]	16.6	21.8	23.1	22.2	20.7	20.4	20.6	21.4	22.4	23.6	22.5	22.9							
TRG _g [dB]	-11.11	-9.19	-8.11	-8.43	-9.39	-9.70	-10.16	-10.04	-9.47	-9.02	-9.23	-9.57							
Gain _{g Peak} [dBi]	-1.89	-0.52	-0.64	-1.44	-0.53	-0.78	-0.95	-0.07	-0.23	0.23	0.22	0.01							
Gain _{g Min} [dBi]	-39.51	-37.09	-43.31	-38.20	-45.85	-46.76	-40.66	-39.68	-35.97	-39.46	-44.23	-33.57							
TRG _g [dB]	-10.55	-10.13	-11.13	-11.03	-10.37	-10.13	-9.59	-9.40	-9.53	-9.54	-9.74	-9.27							
Gain _{g Peak} [dBi]	-1.75	-1.13	-2.02	-0.39	-0.21	0.38	0.82	1.04	0.91	0.37	0.11	0.95							
Gain _{g Min} [dBi]	-37.57	-38.16	-48.85	-38.58	-59.54	-41.62	-35.67	-49.09	-32.86	-33.44	-38.10	-44.89							
UHRG [dB]	-9.42	-8.08	-7.43	-7.40	-7.48	-7.49	-7.48	-7.35	-7.41	-7.27	-7.58	-7.33							
UHRG/TRG [%]	69.0	71.4	78.1	81.9	86.3	87.4	86.5	85.9	80.9	79.2	77.4	80.9							
H-Plane	-10.82	-8.95	-8.24	-8.70	-10.49	-11.14	-10.44	-11.17	-9.85	-8.96	-8.98	-9.53							
E1-Plane, AVG [dB]	-11.61	-8.78	-7.14	-8.76	-8.66	-8.76	-9.22	-8.55	-8.30	-7.80	-8.12	-8.69							
E2-Plane, AVG [dB]	-9.04	-7.55	-7.12	-7.65	-8.33	-8.82	-10.08	-10.23	-10.60	-10.69	-11.31	-11.68							
Peak Gain [dBi]	-1.05	0.31	1.20	0.87	1.22	1.38	1.44	1.75	1.57	1.49	1.13	1.50							
Directivity [dB]	6.76	6.94	7.56	7.40	8.06	8.28	8.30	8.45	8.06	7.75	7.60	7.91							
Minimum Gain [dBi]	-19.71	-20.12	-24.24	-23.55	-28.89	-31.12	-29.40	-25.87	-27.87	-22.95	-25.54	-30.01							
Test Condition	FS																		
Antenna Type																			
Average Efficiency	-6.67 dB, 21.53 %																		

Radiation Pattern _ #3 Ant'

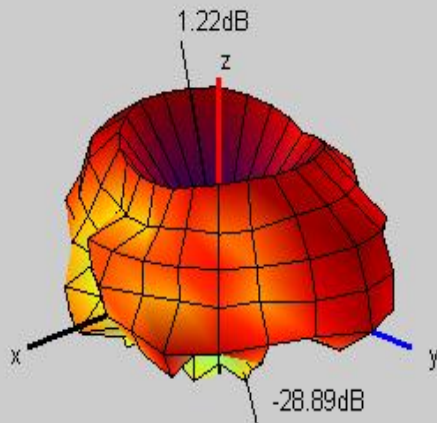
2400MHz



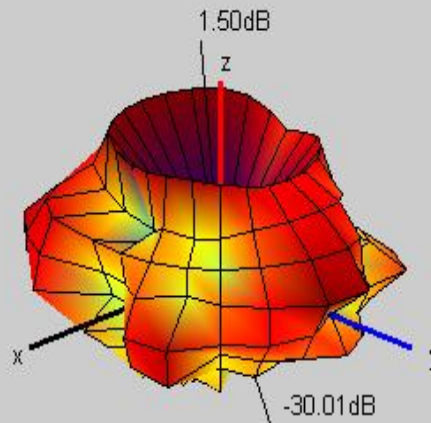
2450MHz



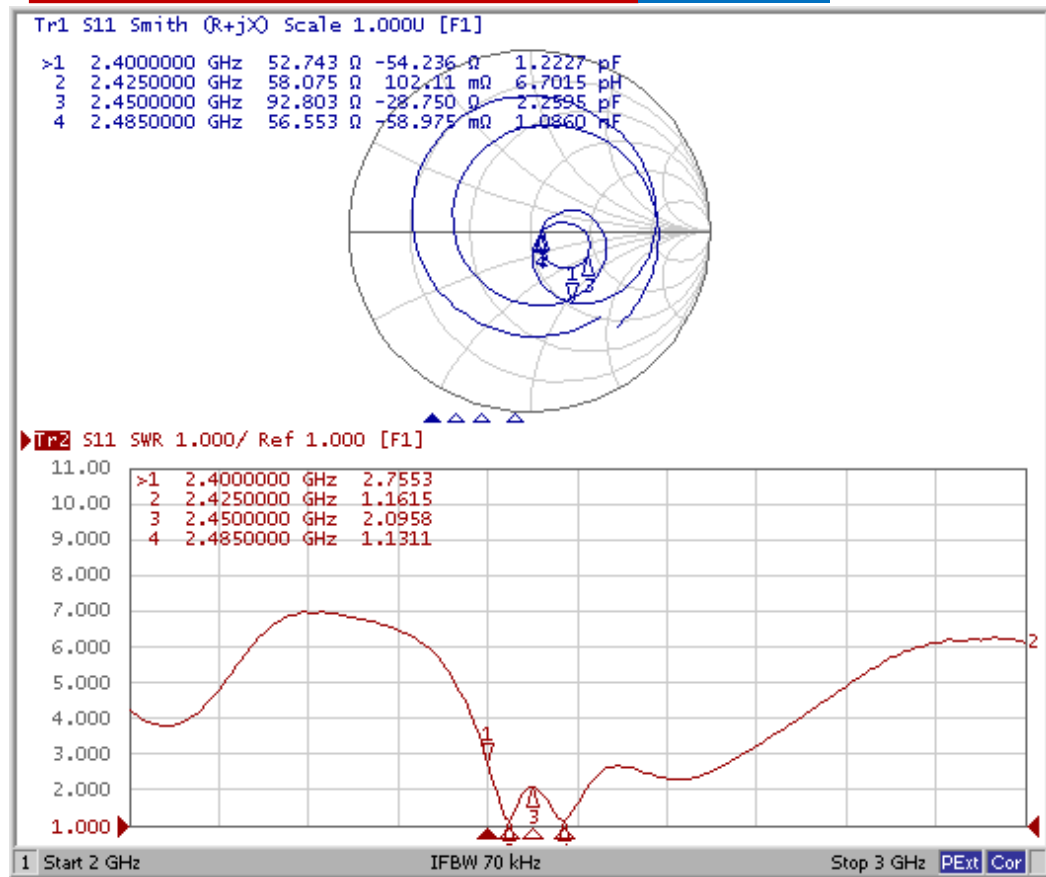
5150MHz



5850MHz



Smith Chart & VSWR _ #4 Ant'

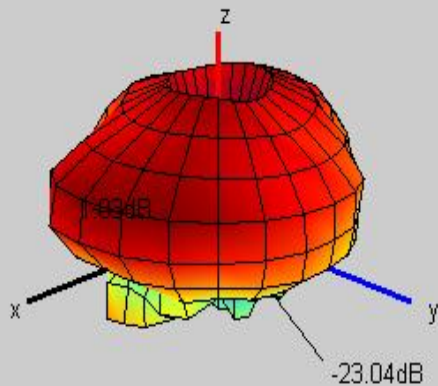


3D Gain data_#4 Ant'

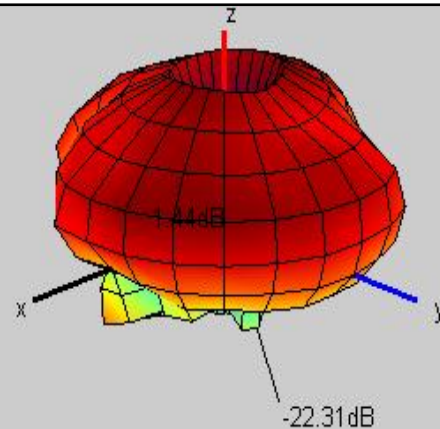
	1	2	3	4															
Frequency [MHz]	2400	2425	2450	2485															
Efficiency [dB]	-5.82	-4.23	-4.49	-5.07															
Efficiency [%]	26.2	37.8	35.6	31.1															
TRG _θ [dB]	-7.38	-6.13	-6.82	-7.05															
Gain _{θ Peak} [dBi]	0.98	1.40	0.53	0.20															
Gain _{θ Min} [dBi]	-36.78	-31.22	-31.75	-35.58															
TRG _φ [dB]	-11.01	-8.73	-8.31	-9.43															
Gain _{φ Peak} [dBi]	-1.22	0.91	0.19	-0.69															
Gain _{φ Min} [dBi]	-35.70	-34.58	-33.51	-34.40															
UHRG [dB]	-6.44	-4.94	-5.30	-5.74															
UHRG/TRG [%]	86.7	84.9	82.9	85.8															
H-Plane	-9.63	-7.88	-7.98	-8.53															
E1-Plane, AVG [dB]	-5.11	-5.94	-10.70	-5.57															
E2-Plane, AVG [dB]	-9.27	-5.51	-4.45	-7.27															
Peak Gain [dBi]	1.03	1.44	1.31	1.48															
Directivity [dB]	6.85	5.66	5.80	6.55															
Minimum Gain [dBi]	-23.04	-22.31	-25.02	-27.65															
Test Condition	FS																		
Antenna Type																			
Average Efficiency	-4.86 dB, 32.67 %																		

Radiation Pattern _ #4 Ant'

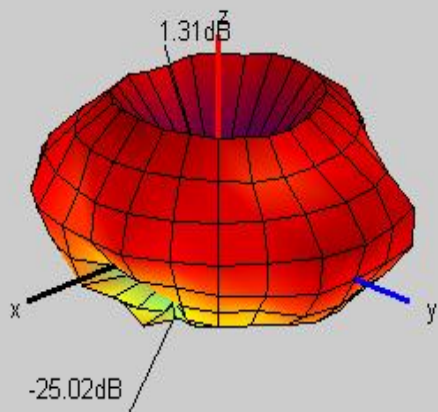
2400MHz



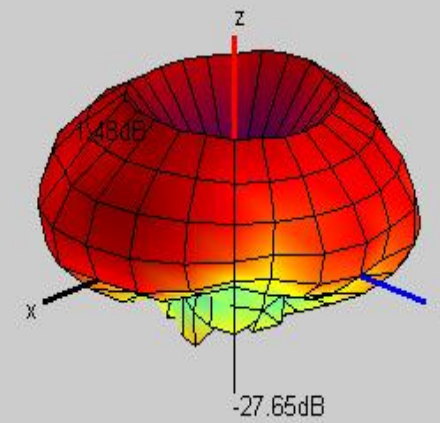
2425MHz



2450MHz



2485MHz



Thank you

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