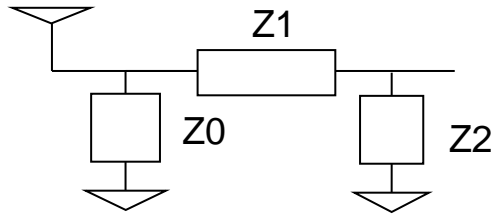




**APPENDIX J**  
**: ANTENNA SPECIFICATION**

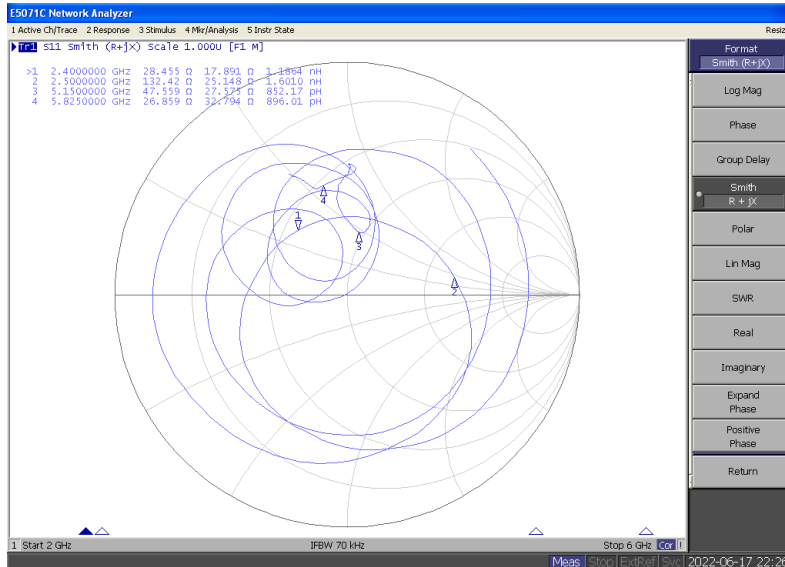
# 1. Test Result – WIFI

- Antenna & matching

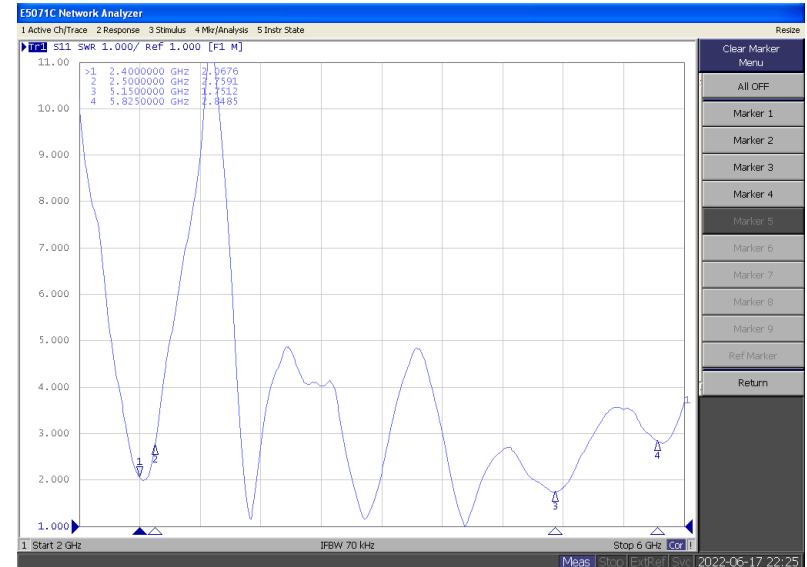


Ant	Sample Ant		
	Z0	Z1	Z2
Matching value			

- Smith Chart & VSWR



Smith chart



VSWR

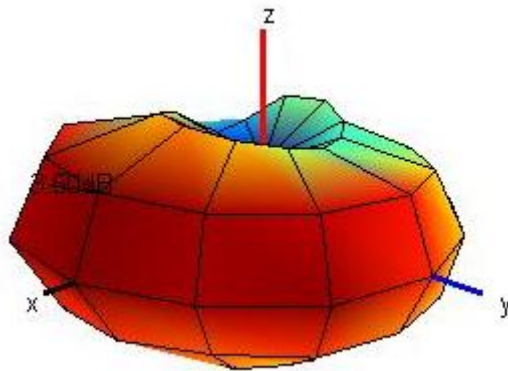
# 1. Test Result – WIFI

- Passive Efficiency

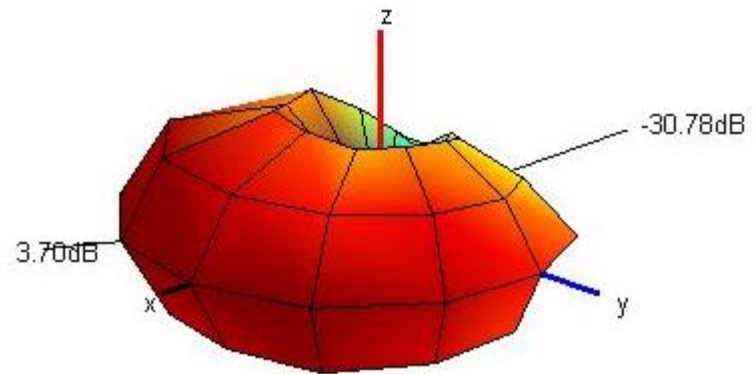
	1	2	3	4	5	6	7	8	9	10	11	12
Frequency [MHz]	2400	2420	2440	2460	2480	2500	5150	5250	5350	5490	5725	5825
Efficiency [dB]	-2.41	-2.48	-2.27	-2.21	-2.11	-2.27	-2.70	-2.39	-2.41	-2.57	-3.28	-3.15
Efficiency [%]	57.4	56.5	59.2	60.1	61.5	59.3	53.7	57.7	57.4	55.4	47.0	48.5
TRG <sub>g</sub> [dB]	-2.61	-2.70	-2.50	-2.44	-2.35	-2.50	-3.32	-2.80	-2.75	-2.89	-3.74	-3.76
Gain <sub>g Peak</sub> [dB]	3.26	3.40	3.49	3.66	3.50	3.49	2.70	3.10	3.55	3.67	2.98	3.23
Gain <sub>g Min</sub> [dB]	-23.00	-25.79	-27.05	-23.72	-30.07	-30.19	-30.74	-29.75	-29.90	-33.10	-26.95	-25.21
TRG <sub>g</sub> [dB]	-15.96	-15.63	-15.29	-15.04	-14.80	-15.03	-11.52	-12.84	-13.61	-13.99	-13.19	-11.93
Gain <sub>g Peak</sub> [dB]	-8.63	-8.09	-7.38	-7.36	-7.87	-8.71	-4.72	-5.00	-5.21	-5.50	-5.48	-4.58
Gain <sub>g Min</sub> [dB]	-40.65	-40.63	-37.56	-38.32	-34.93	-36.46	-28.80	-26.46	-35.38	-34.61	-34.26	-31.68
UHRG [dB]	-4.97	-4.92	-4.66	-4.54	-4.45	-4.66	-5.83	-5.51	-5.69	-5.67	-6.13	-5.96
UHRG/TRG [%]	55.6	57.0	57.7	58.5	58.4	57.6	48.7	48.7	47.1	49.0	51.8	52.4
H-Plane	-0.47	-0.54	-0.58	-0.68	-0.74	-0.76	-1.16	-0.53	-0.32	-0.35	-1.18	-1.01
E1-Plane, AVG [dB]	-2.95	-3.04	-2.87	-2.80	-2.82	-2.95	-3.90	-3.58	-3.52	-3.72	-4.70	-4.72
E2-Plane, AVG [dB]	-5.35	-5.60	-5.29	-5.20	-4.96	-5.28	-6.81	-6.52	-6.55	-6.46	-7.01	-6.83
Peak Gain [dB]	3.29	3.44	3.50	3.69	3.55	3.56	3.11	3.36	3.67	3.70	3.06	3.33
Directivity [dB]	5.71	5.92	5.78	5.90	5.66	5.82	5.82	5.75	6.08	6.27	6.34	6.48
Minimum Gain [dB]	-17.13	-16.58	-15.60	-15.76	-16.08	-16.90	-18.51	-21.00	-25.97	-30.78	-25.23	-23.10
Test Condition	FS											
Antenna Type												
Average Efficiency	-2.51 dB		56.13 %									

# 1. Test Result – WIFI

- Radiation Pattern



2.44GHz

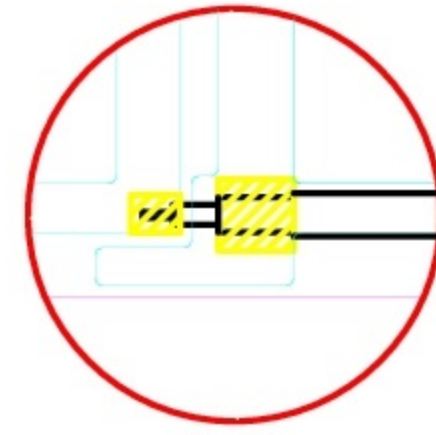


5.49GHz

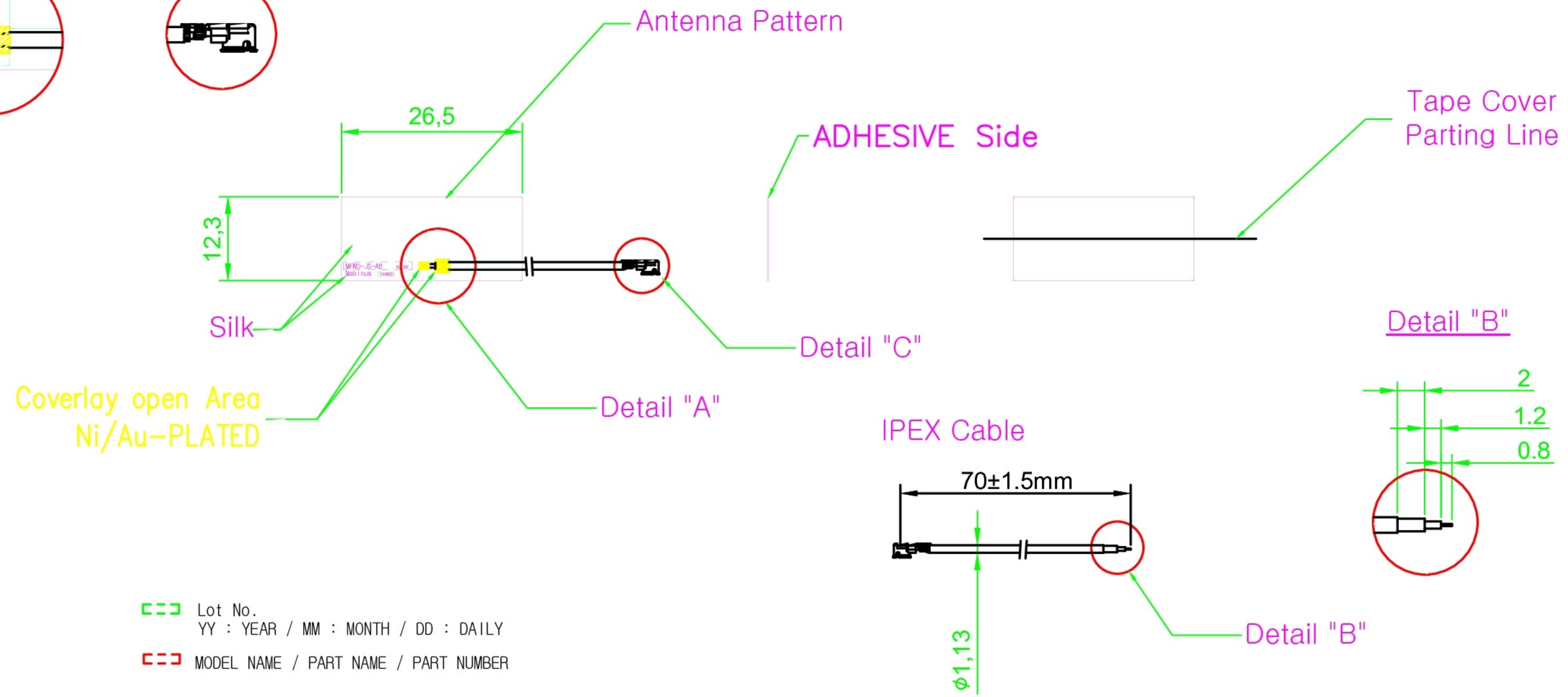
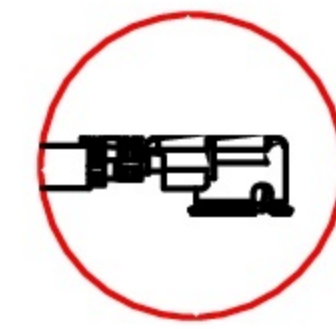


REV. No.	DATE	DESCRIPTION OF CHANGE	DRAWN	APPROVED
1	2022.06.17.	Initialize		

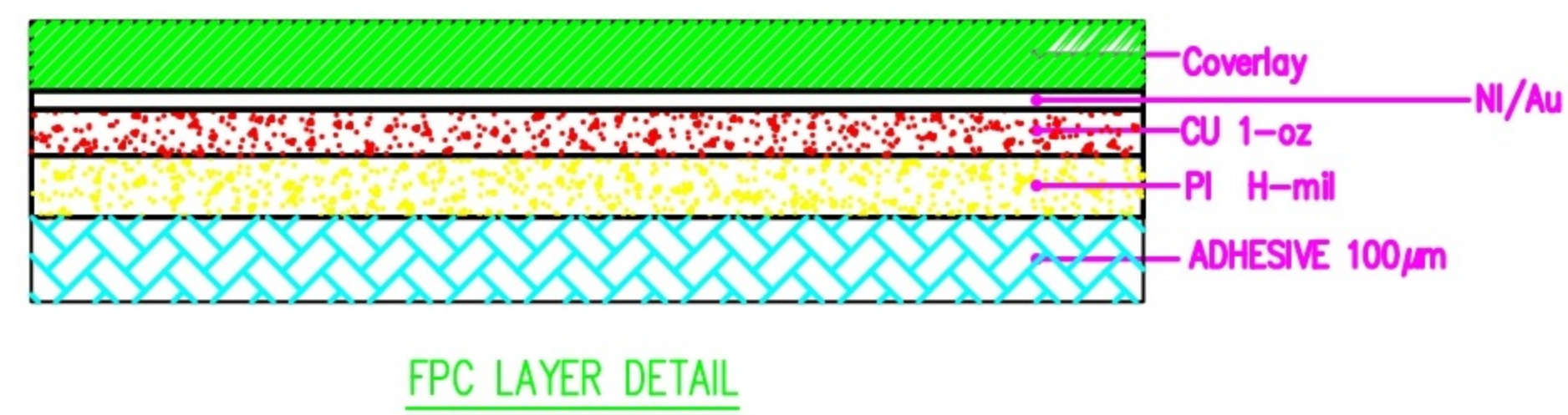
Detail "A"



Detail "C"



Lot No.  
YY : YEAR / MM : MONTH / DD : DAILY  
MODEL NAME / PART NAME / PART NUMBER



- NOTES
- GENERAL TOLERANCE : ±0.2mm
  - MATERIAL : F-PCB
  - Color : 1) CoverLay : Yellow 2) Silk : white
  - Plating : Ni(1~3 µm) +AU(0.02 µm이상)
  - ADHESIVE : 3M-9471
  - IF THERE IS ANY QUESTION, DISCUSS WITH MECHANICAL DESIGNER.

NO	DESCRIPTION	COLOR/FINISH	Q'TY	REMARK
4	Tape	3M 9471	1	
3	Connector	IPEX(U.FL) Connector	1	
2	RF Cable	φ1.13 Coaxial Cable	1	Black
1	F-PCB	PI+Adhesive+Cu	1	

환경 유해 물질 관리 기준서

구분	측정 항목	시험 방법	판단 기준	
		유기물	무기물	
카드늄 (Cd)	정밀	5 미만	80 미만	
	XRF	50미만	70 미만	
	납 (Pb)	정밀	100 미만	900 미만
		XRF	200 미만	700 미만
수은 (Hg)	정밀	800 미만	-	
	XRF	700 미만	-	
6가크롬 (Cr+6)	정밀	800 미만(도관불가)	-	
	XRF	700 미만	-	
다이오신 (염소)	T-배	정밀	900 미만	
	XRF	-	-	

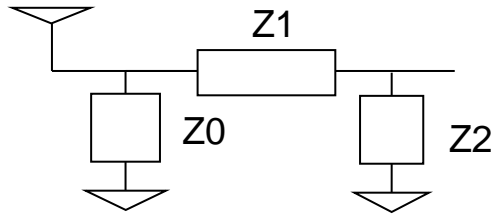
검출단위: ppm=mg/kg(무게기준) 2011.01.01 기준

DRAWING BY	CHECKED BY	APPROVED BY	ANGLE	3rd	MODEL	WiFi Dual
			UNIT	mm	PART NAME	MFWD-J5-AB Ass'y
			SCALE	N/A	PART NO	
			TOLERANCE		PART NO	
			SEE THE NOTES		DRW NO	
			A4			



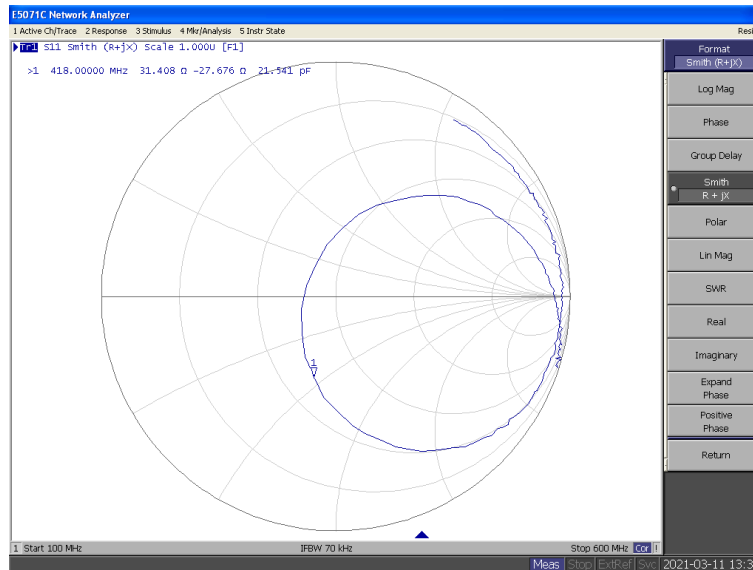
# 1. Test Result – 418MHz

- Antenna & matching

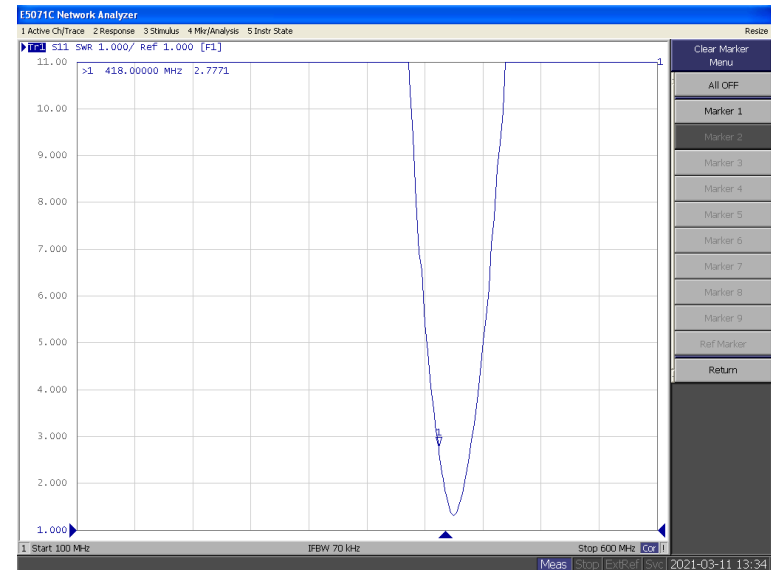


Ant	Sample Ant		
	Z0	Z1	Z2
Matching value			

- Smith Chart & VSWR



Smith chart



VSWR



# 1. Test Result – 418MHz

- Passive Efficiency

	1	2	3	
Frequency [MHz]	413	418	423	
Efficiency [dB]	-30.37	-29.23	-28.13	
Efficiency [%]	0.1	0.1	0.2	
TRG <sub>g</sub> [dB]	-31.70	-30.47	-29.30	
Gain <sub>g Peak</sub> [dB]	-28.32	-27.28	-26.36	
Gain <sub>g Min</sub> [dB]	-42.31	-41.04	-41.50	
TRG <sub>g</sub> [dB]	-36.16	-35.27	-34.38	
Gain <sub>g Peak</sub> [dB]	-31.82	-30.89	-30.33	
Gain <sub>g Min</sub> [dB]	-55.85	-56.59	-49.81	
UHRG [dB]	-33.13	-32.00	-30.97	
UHRG/TRG [%]	53.0	52.9	51.9	
H-Plane	-29.83	-28.47	-27.26	
E1-Plane, AVG [dB]	-32.31	-31.19	-30.00	
E2-Plane, AVG [dB]	-32.88	-31.69	-30.56	
Peak Gain [dB]	-27.81	-26.60	-25.38	
Directivity [dB]	2.56	2.63	2.75	
Minimum Gain [dB]	-40.04	-38.86	-37.81	
Test Condition	FS			
Antenna Type				
Average Efficiency	-29.15 dB		0.12 %	

