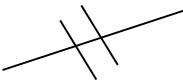




RFID Quadrifilar Helix Antenna Specification

Unit Name.	QUBE PLUS
Parts Name	KSA-937A4005B90E
Date	21-Jul-25

Written by	Checked by	Approved by
JSKim		

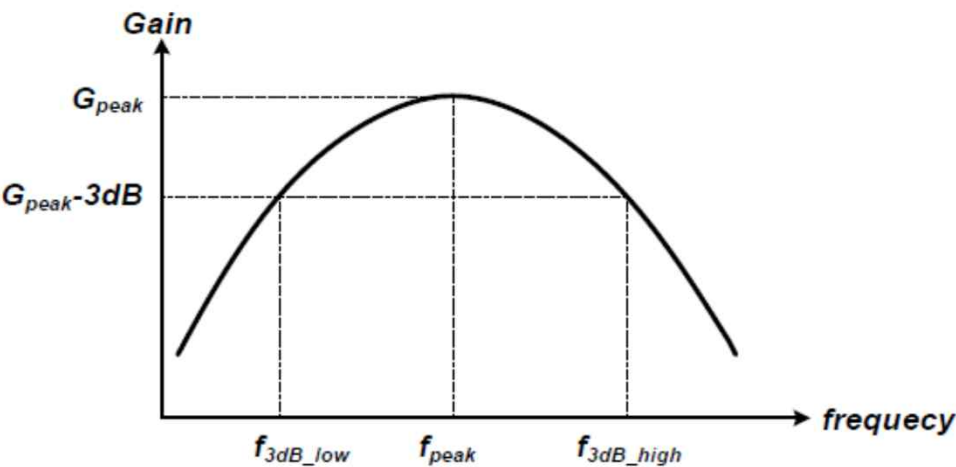
Head Office & Factory
507 DANGSANRO YUNSUHMYON SEJONGSI
THE REPUBLIC OF KOREA
TEL : (044) 865-9008
FAX : (044) 865-9229

1. Part Name
KSA-937A4005B90E

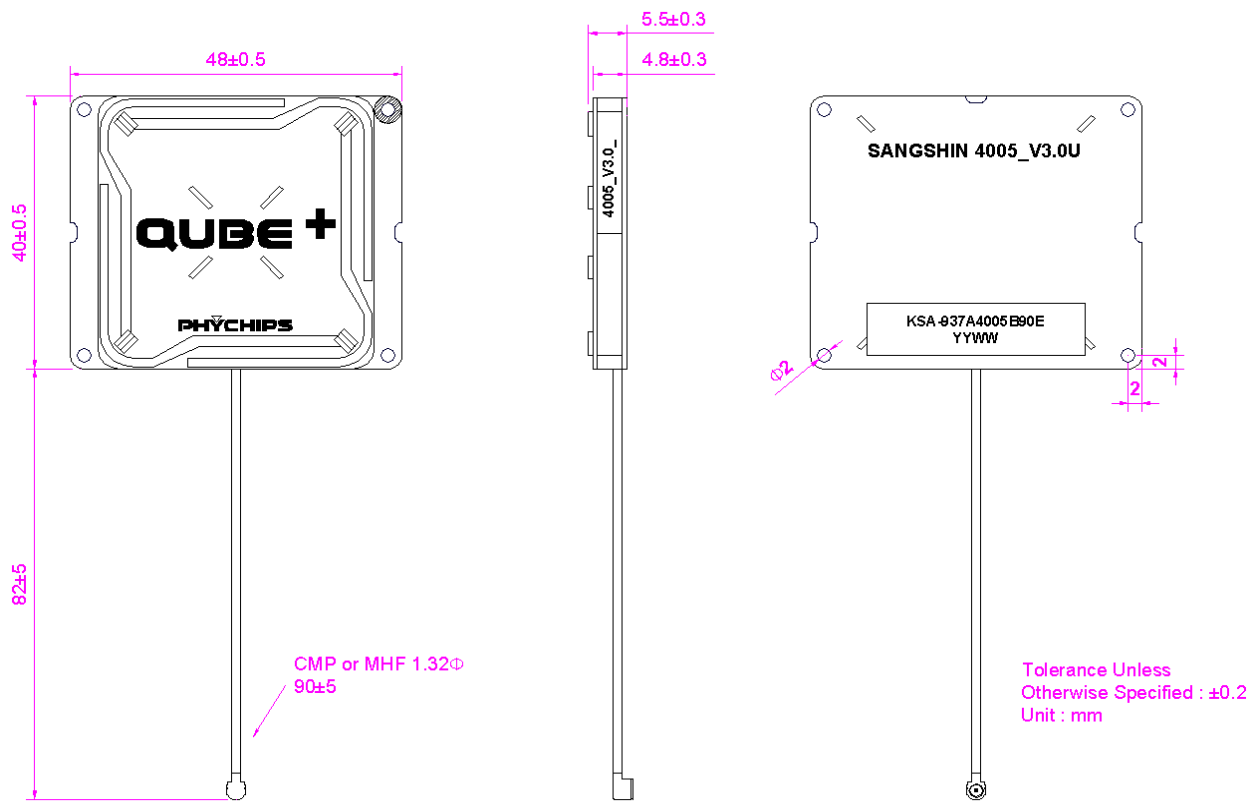
2. Electrical Specifications

Item	Specifications			
	Min.	Typical	Max.	Unit
Center Frequency (= Fc)	933	937	941	MHz
3dB Bandwidth	10	18		MHz
Return Loss @ Fc			-15	dB
Polarization	R.H.C.P			
Peak Gain @ Fc (RHCP)		-2.5		dBic
Gain @ Reference Antenna	-19	-16		dB

Note 1. 3dB Bandwidth is defined as frequency range between f3dB_low and f3dB_high.



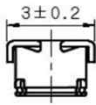
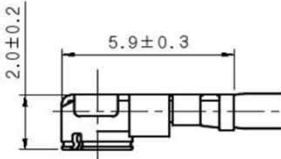
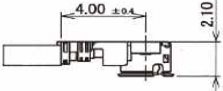
3. Dimensions



* Both CMP(Gigalane) and MHF(I-PEX) can be used interchangeably.
However, only one type, either CMP or MHF, must be used in the same LOT production.

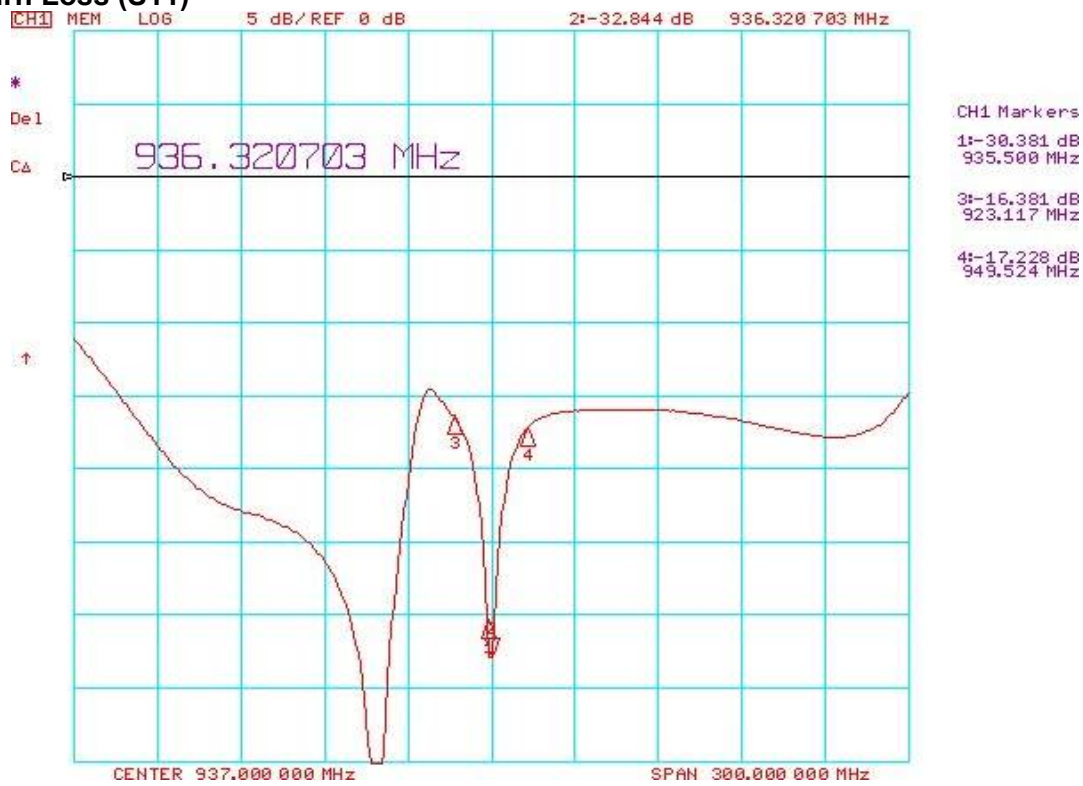
* YYWW : Date Code

* Dimensions of Connector

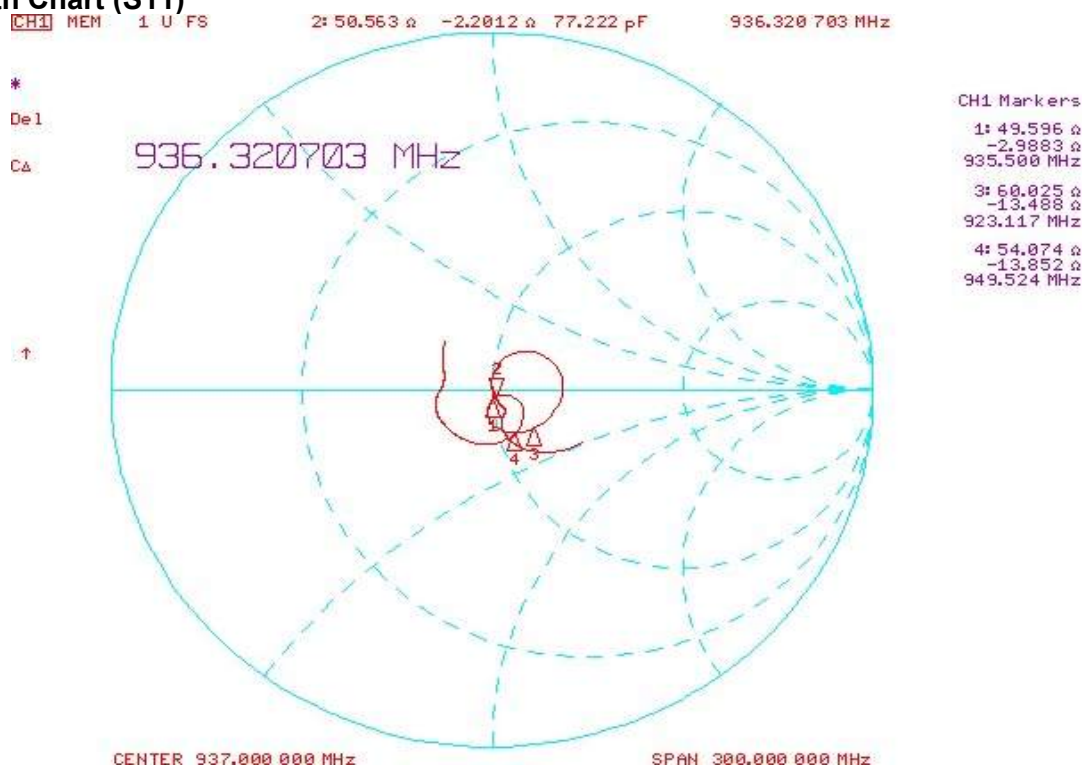
CMP		MHF	
			

4. S-parameter Data

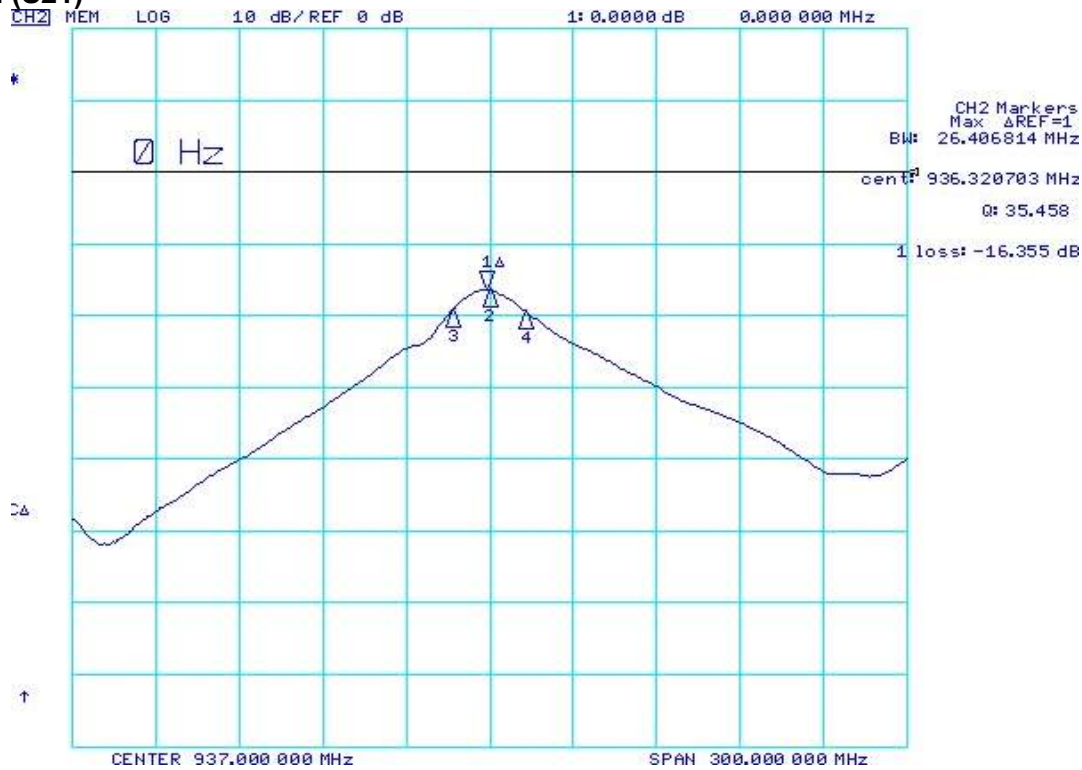
4.1 Return Loss (S11)



4.2 Smith Chart (S11)



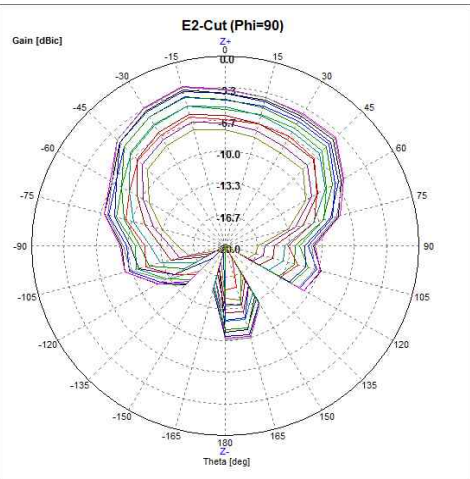
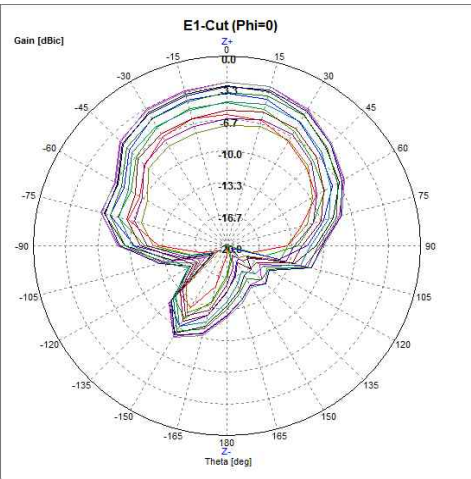
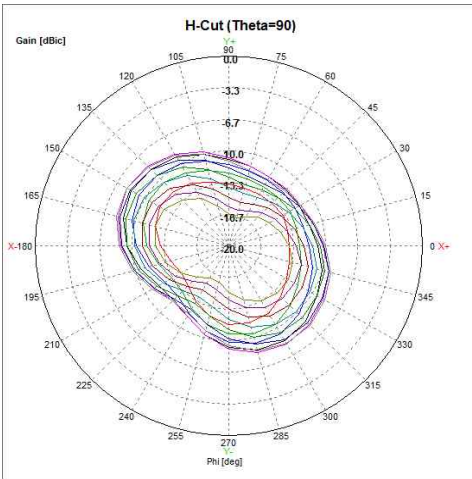
4.3 Gain (S21)



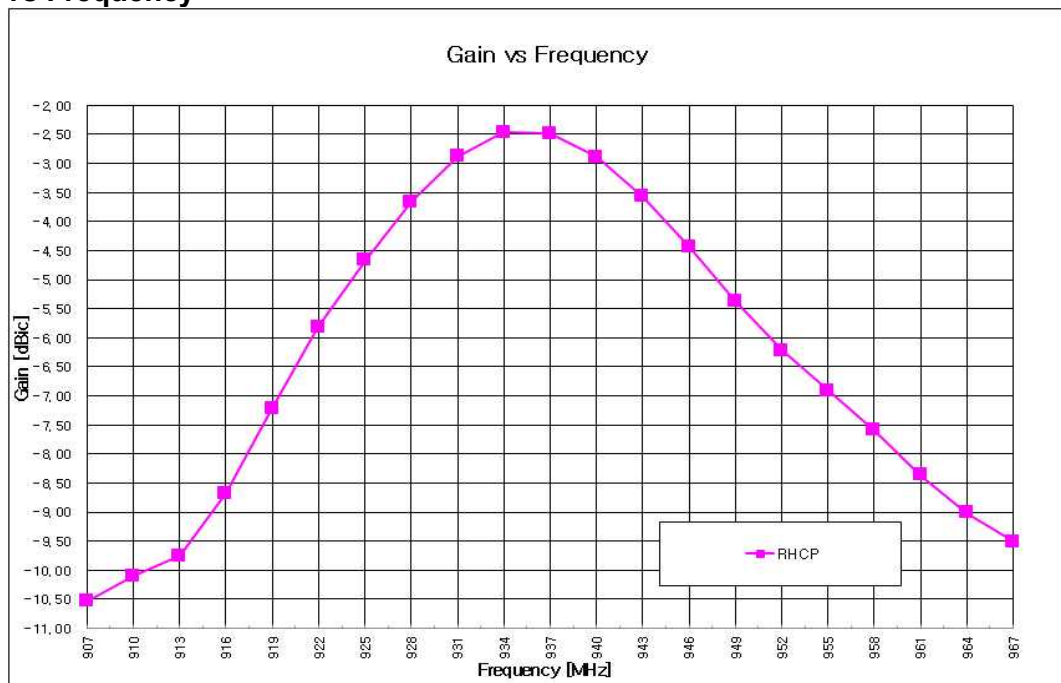
5. Antenna Chamber Data

5.1 RHCP Gain

No.	Freq.	RHCP	Eff.[%]	Avg.[dBic]	Peak[dBic]	Theta[°]	Phi[deg]	H(Theta=0)	E1(Phi=0)	E2(Phi=90)
6	922.000	8.26	-10.83	-5.82	0.00	225.00	-12.90	-11.55	285.00	999.00
7	925.000	10.67	-9.72	-4.67	0.00	240.00	-11.74	-10.37	285.00	999.00
8	928.000	13.28	-8.77	-3.66	0.00	240.00	-10.76	-9.29	300.00	341.22
9	931.000	15.66	-8.05	-2.88	15.00	315.00	-10.01	-8.39	150.00	133.82
10	934.000	17.02	-7.69	-2.46	15.00	315.00	-9.62	-7.86	150.00	120.33
11	937.000	16.81	-7.75	-2.48	15.00	345.00	-9.66	-7.87	150.00	117.27
12	940.000	15.29	-8.16	-2.89	15.00	345.00	-10.07	-8.25	150.00	116.15
13	943.000	13.14	-8.82	-3.57	15.00	345.00	-10.76	-8.95	150.00	116.07
14	946.000	10.79	-9.67	-4.43	15.00	345.00	-11.64	-9.80	165.00	114.83
15	949.000	8.76	-10.57	-5.37	15.00	330.00	-12.58	-10.73	165.00	114.88
16	952.000	7.27	-11.38	-6.22	15.00	345.00	-13.42	-11.47	165.00	112.35
17	955.000	6.20	-12.08	-6.91	30.00	345.00	-14.16	-12.17	165.00	112.43



5.2 Gain vs Frequency



6. Measurement within enclosure

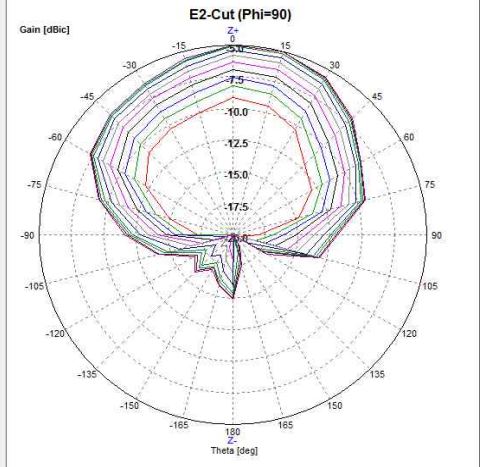
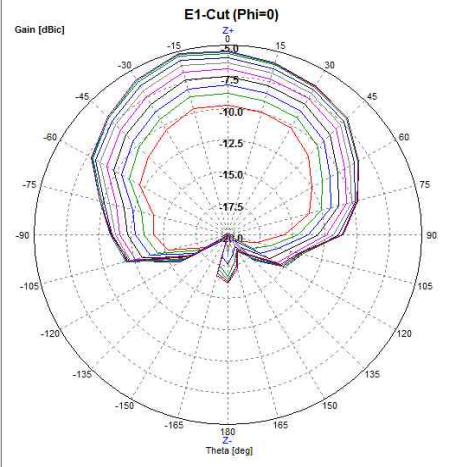
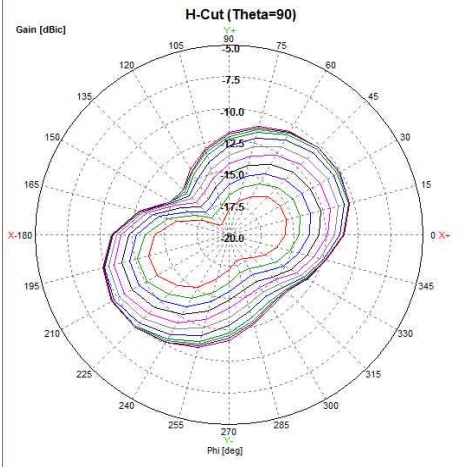
6.1 Reader or Model Name

6.2 Electrical Specifications

Item		Specifications			
		Min.	Typical	Max.	Unit
Center Frequency (= Fc)		916	920	924	MHz
3dB Bandwidth		10	18		MHz
Return Loss @ Fc				-15	dB
Polarization		R.H.C.P			
Peak Gain	RHCP		-4.8		dBic
	H (Theta-Pol)		-7.6		dBi
	V (Phi-Pol)		-7.6		dBi
Axial Ratio @ Fc			2.3		

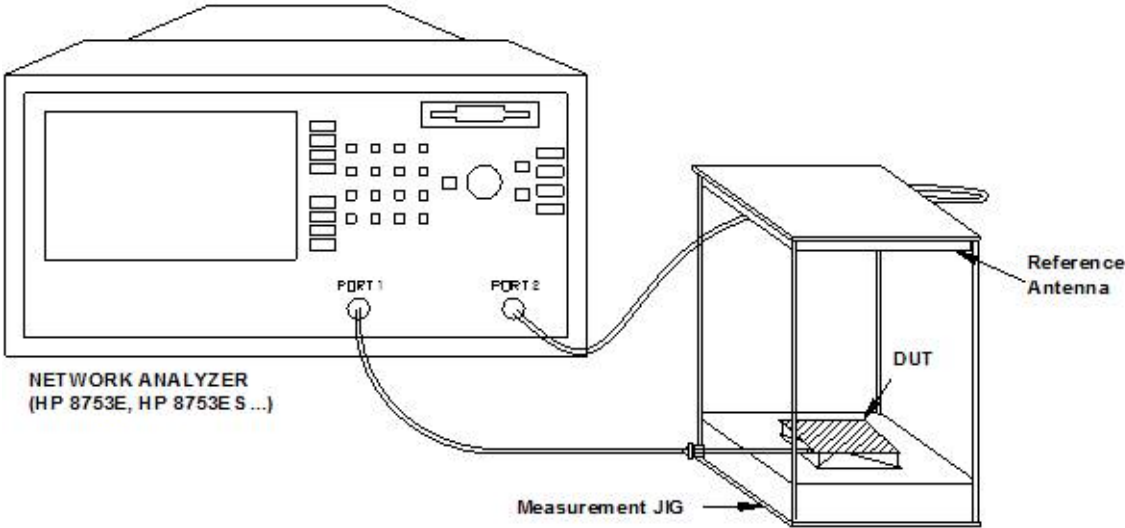
6.3 Antenna Chamber Data within enclosure

		RHCP						Theta-Pi								Phi-Pol'											
No.	Freq.	Eff.[%]	Avg.[dBic]	Peak[dBic]	Theta[°]	Phi[deg]	No.	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta[°]	Phi[deg]	No.	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta[°]	Phi[deg]	No.	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta[°]	Phi[deg]
1	902.000	3.46	-14.61	-9.15	0.00	105.00	1	902.000	1.67	-17.77	-11.74	15.00	120.00	1	902.000	2.00	-17.00	-11.52	15.00	45.00							
2	905.000	4.32	-13.65	-8.24	0.00	90.00	2	905.000	2.07	-16.84	-10.82	15.00	120.00	2	905.000	2.49	-16.03	-10.69	15.00	45.00							
3	907.000	5.08	-12.94	-7.57	0.00	90.00	3	907.000	2.43	-16.15	-10.11	15.00	120.00	3	907.000	2.93	-15.33	-10.00	15.00	45.00							
4	909.000	5.98	-12.23	-6.90	0.00	105.00	4	909.000	2.85	-15.45	-9.46	15.00	120.00	4	909.000	3.44	-14.63	-9.34	15.00	45.00							
5	911.000	6.94	-11.59	-6.30	0.00	105.00	5	911.000	3.31	-14.81	-8.86	15.00	120.00	5	911.000	3.98	-14.01	-8.75	15.00	45.00							
6	913.000	7.88	-11.04	-5.78	0.00	105.00	6	913.000	3.75	-14.26	-8.37	15.00	120.00	6	913.000	4.49	-13.48	-8.31	15.00	60.00							
7	915.000	8.74	-10.58	-5.36	0.00	105.00	7	915.000	4.17	-13.80	-7.99	15.00	120.00	7	915.000	4.95	-13.05	-7.97	15.00	60.00							
8	917.000	9.43	-10.26	-5.05	0.00	105.00	8	917.000	4.49	-13.47	-7.74	15.00	120.00	8	917.000	5.31	-12.75	-7.73	15.00	60.00							
9	918.000	9.67	-10.15	-4.94	0.00	105.00	9	918.000	4.61	-13.36	-7.68	15.00	120.00	9	918.000	5.43	-12.65	-7.72	0.00	195.00							
10	919.000	9.83	-10.08	-4.86	0.00	120.00	10	919.000	4.68	-13.29	-7.64	15.00	120.00	10	919.000	5.50	-12.60	-7.70	0.00	180.00							
11	920.000	9.88	-10.05	-4.83	0.00	120.00	11	920.000	4.71	-13.27	-7.68	15.00	120.00	11	920.000	5.52	-12.58	-7.63	0.00	180.00							
12	921.000	9.81	-10.08	-4.87	0.00	120.00	12	921.000	4.68	-13.30	-7.72	15.00	120.00	12	921.000	5.47	-12.62	-7.62	0.00	180.00							
13	922.000	9.63	-10.17	-4.93	0.00	120.00	13	922.000	4.59	-13.38	-7.83	15.00	105.00	13	922.000	5.35	-12.72	-7.63	0.00	180.00							
14	923.000	9.36	-10.29	-5.05	0.00	120.00	14	923.000	4.47	-13.49	-7.89	15.00	105.00	14	923.000	5.19	-12.85	-7.71	0.00	180.00							
15	924.000	9.02	-10.45	-5.20	0.00	120.00	15	924.000	4.31	-13.65	-8.06	15.00	105.00	15	924.000	4.99	-13.02	-7.81	0.00	180.00							
16	925.000	8.64	-10.64	-5.37	0.00	120.00	16	925.000	4.14	-13.83	-8.20	15.00	105.00	16	925.000	4.77	-13.22	-7.95	0.00	180.00							
17	926.000	8.25	-10.84	-5.56	0.00	120.00	17	926.000	3.96	-14.02	-8.35	15.00	105.00	17	926.000	4.54	-13.43	-8.11	0.00	180.00							
18	928.000	7.47	-11.26	-5.97	0.00	135.00	18	928.000	3.60	-14.44	-8.67	15.00	105.00	18	928.000	4.11	-13.86	-8.41	0.00	180.00							
19	930.000	6.70	-11.74	-6.43	0.00	120.00	19	930.000	3.23	-14.90	-9.02	0.00	270.00	19	930.000	3.69	-14.33	-8.80	0.00	180.00							

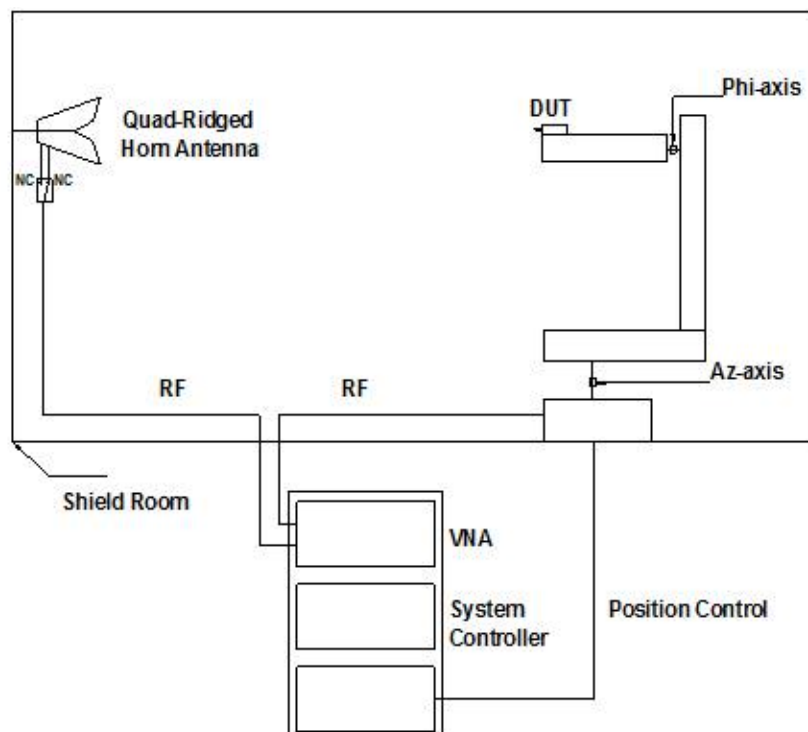


7. Measurement Condition

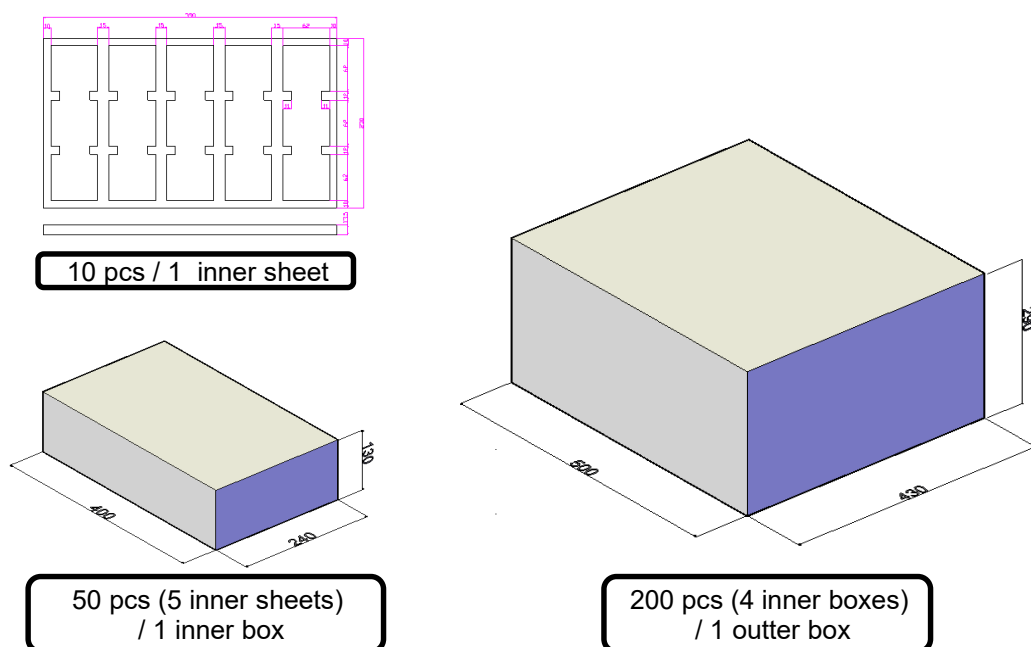
7.1 S-parameter Measurement



7.2 Gain Measurement



8. Package



9. Revision

Revision No.	Originator	Description of Change	Date of Changes
Ver-00	JSKim	Sample Specificaton	21-Jul-25