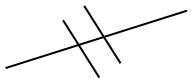





RFID Quadrifilar Helix Antenna Specification

Unit Name.	QUBE PLUS
Parts Name	KSA-935A7515B120E
Date	22-May-23

Written by	Checked by	Approved by
SY Kim		

Head Office & Factory

614-1, Wolhari Suhmyon Yunkikun Chungnam, Republic of Korea

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USA Branch Office in PA

354, Goldfinch Drive, Palmyra, PA 17078 USA

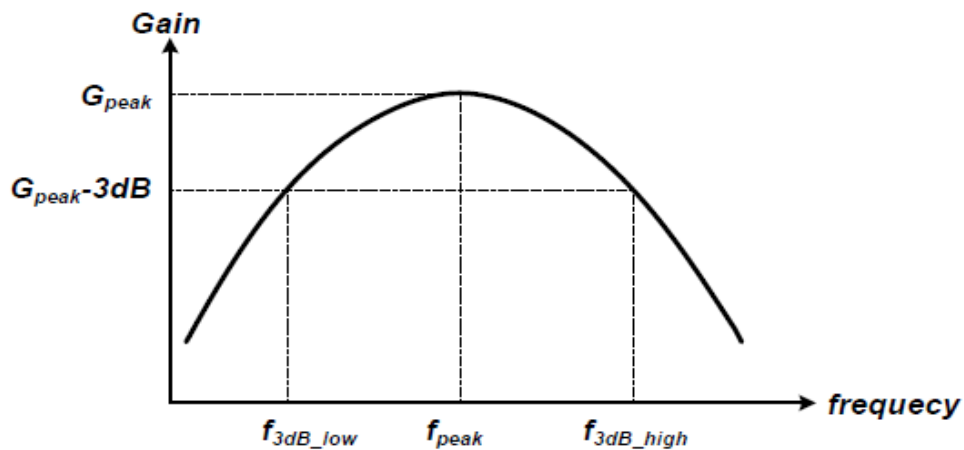
Phone No.: 717-838-8373; FAX No: 215-754-460

1. Part Name
KSA-935A7515B120E

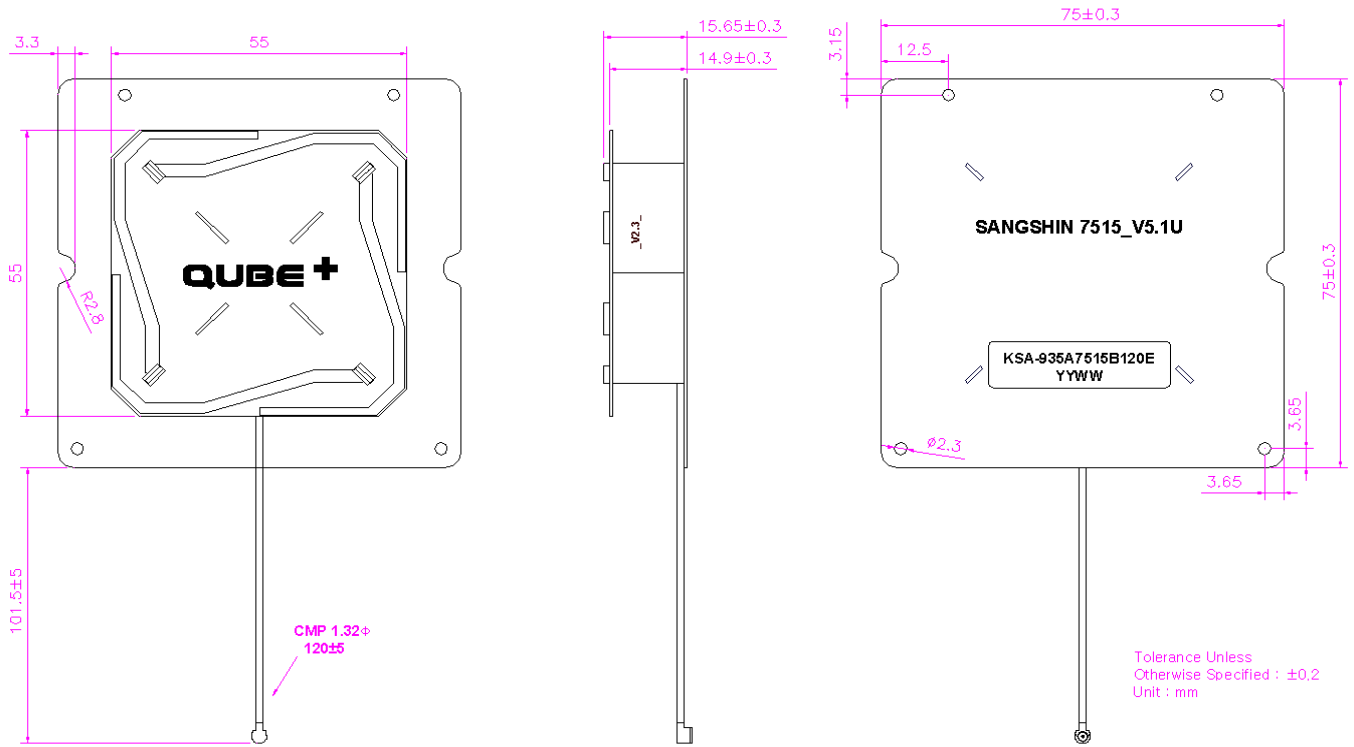
2. Electrical Specifications

Item	Specifications			
	Min.	Typical	Max.	Unit
Center Frequency (= Fc)	931	935	939	MHz
3dB Bandwidth	26	30		MHz
Return Loss @ Fc			-15	dB
Polarization	R.H.C.P			
Peak Gain @ Fc (RHCP)		4		dBic
Gain @ Reference Antenna	-14	-11		dB

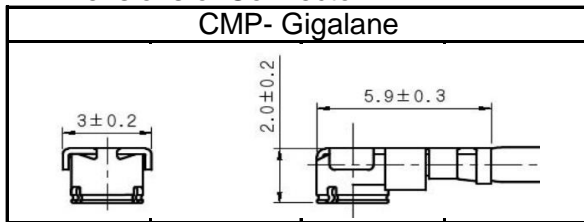
Note 1. 3dB Bandwidth is defined as frequency range between f_{3dB_low} and f_{3dB_high} .



3. Dimensions



* Dimensions of Connector

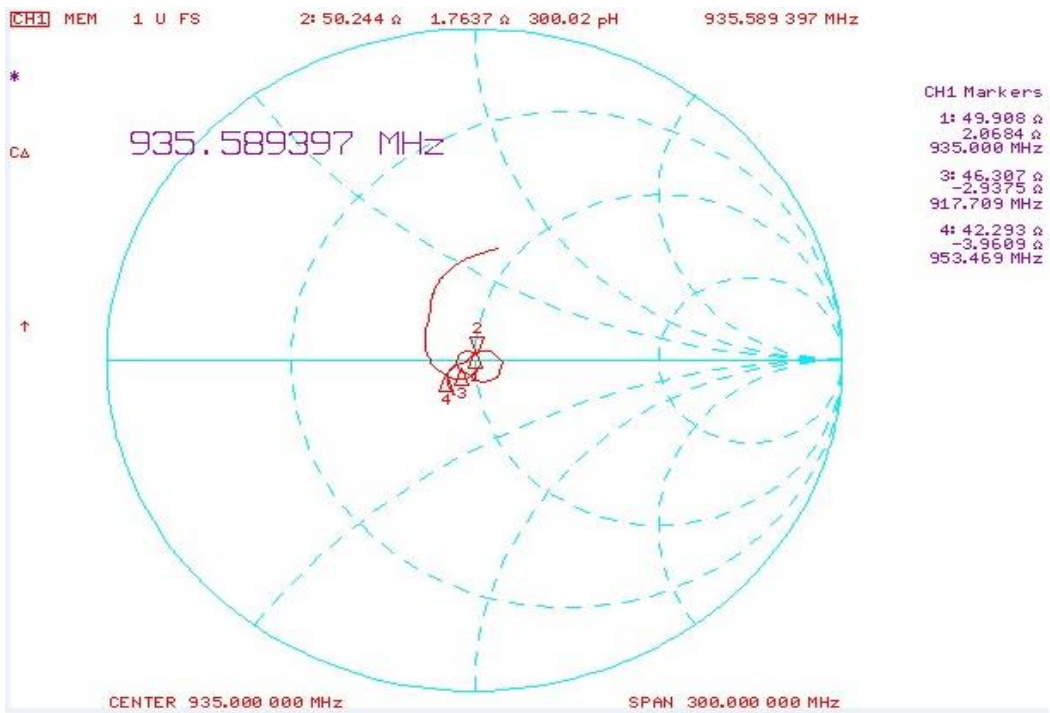


4. S-parameter Data

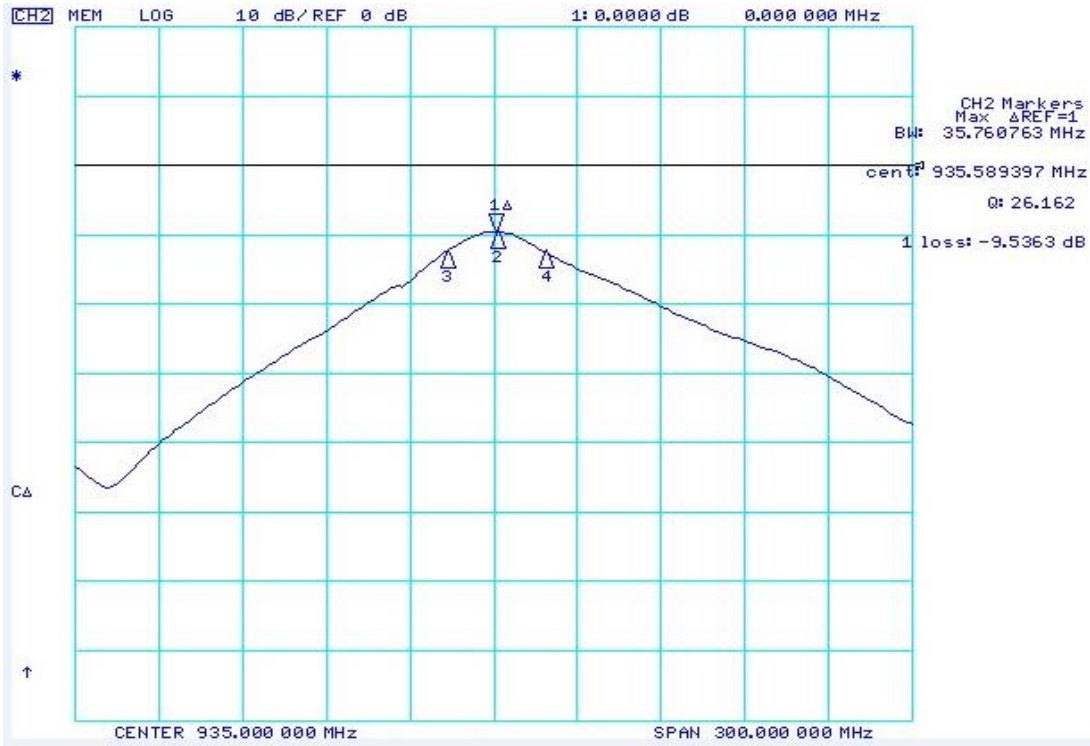
4.1 Return Loss (S11)



4.2 Smith Chart (S11)



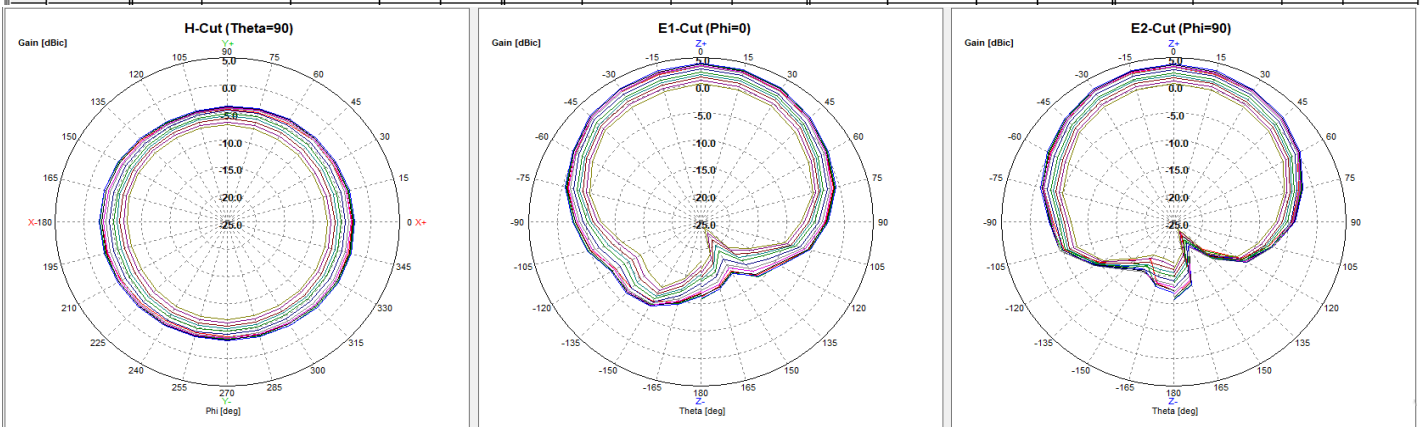
4.3 Gain (S21)



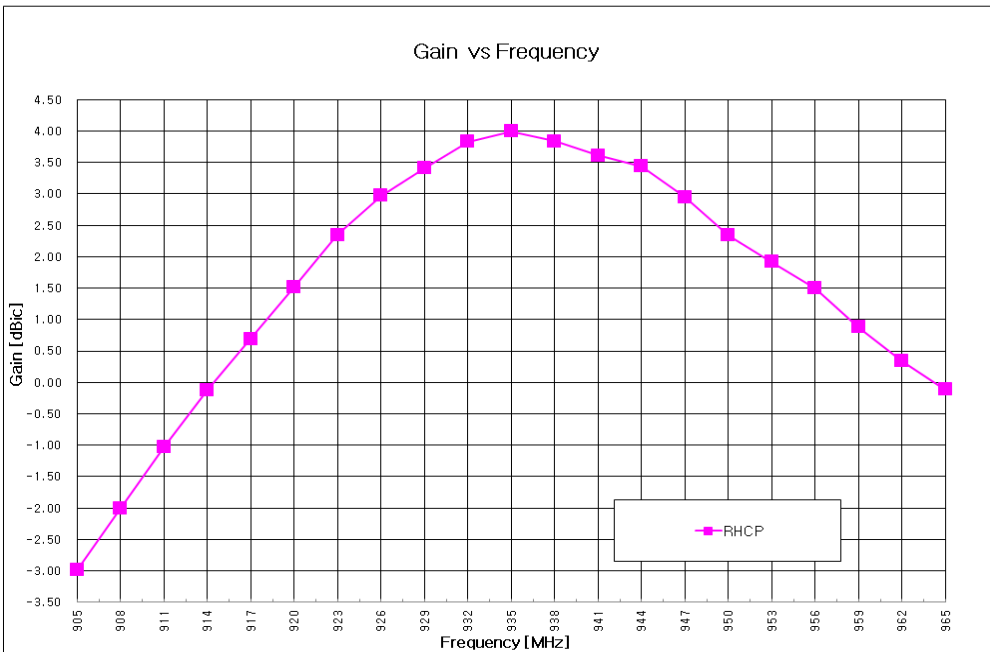
5. Antenna Chamber Data

5.1 RHCP

No.	Freq.	RHCP				H(Theta=)				E1(Phi=0)				E2(Phi=90)				
		Eff.[%]	Avg.[dBic]	Peak[dBic]	Theta[°]	Phi[deg]	Avg.[dBic]	Peak[dBic]	[deg]	BW[deg]	Avg.[dBic]	Peak[dBic]	Theta[°]	BW[deg]	Avg.[dBic]	Peak[dBic]	Theta[°]	BW[deg]
5	917.000	33.83	-4.71	0.69	0.00	-90.00	-6.37	-5.44	330.00	999.00	-3.83	0.67	0.00	115.43	-4.15	0.47	-15.00	115.84
6	920.000	40.74	-3.90	1.52	0.00	30.00	-5.56	-4.73	330.00	999.00	-3.00	1.49	0.00	114.82	-3.35	1.25	0.00	115.69
7	923.000	49.24	-3.08	2.35	0.00	15.00	-4.75	-3.98	330.00	999.00	-2.15	2.31	0.00	115.04	-2.53	2.11	0.00	114.72
8	926.000	56.70	-2.46	2.97	0.00	30.00	-4.15	-3.43	330.00	999.00	-1.52	2.94	0.00	114.77	-1.93	2.75	0.00	113.26
9	929.000	62.81	-2.02	3.41	0.00	-75.00	-3.72	-3.06	330.00	999.00	-1.07	3.36	0.00	115.32	-1.49	3.21	0.00	112.43
10	932.000	69.16	-1.60	3.83	0.00	-90.00	-3.31	-2.76	180.00	999.00	-0.66	3.77	0.00	114.92	-1.07	3.64	0.00	111.76
11	935.000	71.85	-1.44	4.00	0.00	-90.00	-3.15	-2.67	180.00	999.00	-0.50	3.93	0.00	114.89	-0.89	3.84	0.00	111.02
12	938.000	68.45	-1.65	3.84	0.00	-90.00	-3.39	-3.01	345.00	999.00	-0.73	3.76	0.00	113.42	-1.06	3.66	0.00	110.37
13	941.000	64.75	-1.89	3.61	0.00	-90.00	-3.67	-3.41	330.00	999.00	-0.99	3.53	0.00	112.58	-1.27	3.44	0.00	110.02
14	944.000	61.63	-2.10	3.44	0.00	-90.00	-3.93	-3.67	240.00	999.00	-1.22	3.36	0.00	111.29	-1.45	3.26	0.00	109.37
15	947.000	54.84	-2.61	2.95	0.00	-90.00	-4.49	-4.19	240.00	999.00	-1.74	2.89	0.00	110.56	-1.92	2.79	0.00	108.91
16	950.000	47.41	-3.24	2.34	0.00	-90.00	-5.18	-4.87	240.00	999.00	-2.38	2.29	0.00	109.91	-2.52	2.20	0.00	108.55
17	953.000	42.88	-3.68	1.92	0.00	-90.00	-5.66	-5.35	255.00	999.00	-2.83	1.88	0.00	109.59	-2.94	1.78	0.00	108.81
18	956.000	38.72	-4.12	1.50	0.00	-90.00	-6.14	-5.80	255.00	999.00	-3.29	1.45	0.00	109.46	-3.36	1.37	0.00	108.65
19	959.000	33.46	-4.75	0.88	0.00	45.00	-6.81	-6.50	255.00	999.00	-3.93	0.83	0.00	109.54	-3.98	0.76	0.00	108.97

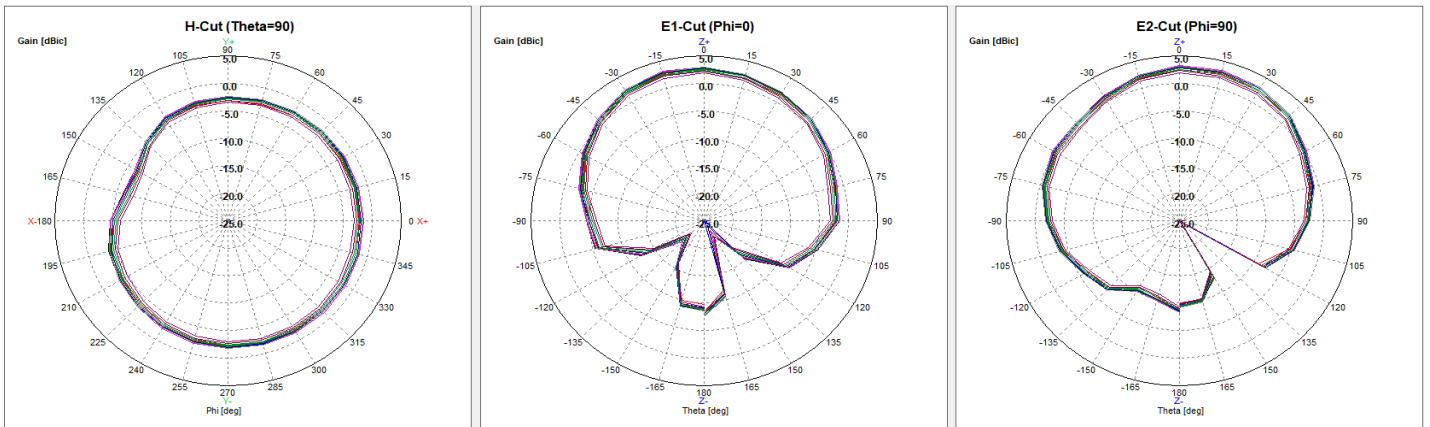


5.3 Gain vs Frequency



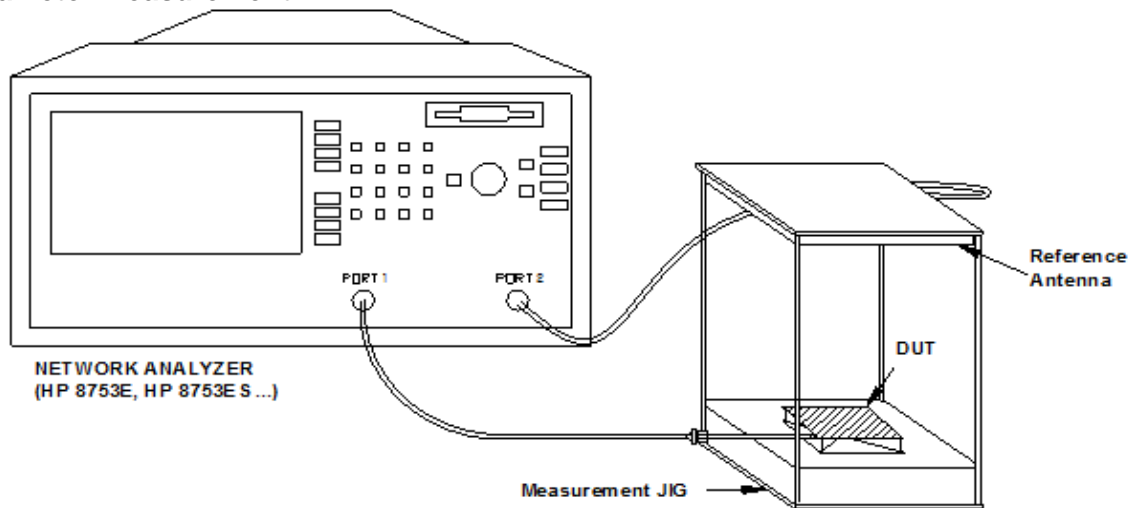
5.4 Gain @ RF-88

No.	Freq.	RHCP					H(Theta=)					E1(Phi=0)				E2(Phi=90)			
		Eff.[%]	Avg.[dBic]	Peak[dBic]	Theta[deg]	Phi[deg]	Avg.[dBic]	Peak[dBic]	[deg]	BW[deg]	Avg.[dBic]	Peak[dBic]	Theta[deg]	BW[deg]	Avg.[dBic]	Peak[dBic]	Theta[deg]	BW[deg]	
3	901.000	48.40	-3.15	1.94	15.00	105.00	-3.93	-2.82	330.00	315.22	-2.82	1.68	-15.00	115.45	-2.36	1.91	15.00	123.45	
4	903.000	53.34	-2.73	2.34	15.00	105.00	-3.49	-2.35	330.00	314.42	-2.39	2.12	-15.00	114.77	-1.94	2.33	15.00	123.77	
5	905.000	57.73	-2.39	2.70	15.00	105.00	-3.13	-2.00	330.00	313.64	-2.04	2.49	-15.00	114.20	-1.61	2.67	15.00	123.49	
6	907.000	61.46	-2.11	2.98	15.00	105.00	-2.84	-1.73	330.00	312.73	-1.77	2.76	-15.00	114.47	-1.34	2.95	15.00	122.78	
7	909.000	64.40	-1.91	3.17	15.00	105.00	-2.63	-1.55	330.00	311.88	-1.55	2.98	-15.00	114.26	-1.14	3.13	15.00	123.69	
8	911.000	66.30	-1.79	3.29	15.00	105.00	-2.49	-1.42	330.00	311.34	-1.42	3.12	-15.00	114.10	-1.00	3.27	15.00	123.46	
9	913.000	66.66	-1.76	3.31	15.00	105.00	-2.47	-1.43	330.00	311.10	-1.40	3.14	-15.00	114.00	-0.98	3.28	15.00	123.44	
10	914.000	66.19	-1.79	3.29	15.00	105.00	-2.50	-1.48	330.00	310.86	-1.43	3.11	-15.00	113.99	-1.00	3.24	15.00	123.51	
11	915.000	65.34	-1.85	3.24	15.00	105.00	-2.55	-1.54	315.00	310.60	-1.48	3.06	-15.00	113.89	-1.06	3.20	15.00	123.08	
12	916.000	64.16	-1.93	3.15	15.00	105.00	-2.63	-1.62	315.00	310.01	-1.56	2.97	-15.00	114.21	-1.13	3.11	15.00	123.85	
13	917.000	62.78	-2.02	3.07	15.00	105.00	-2.72	-1.71	315.00	309.56	-1.65	2.89	-15.00	114.02	-1.22	3.02	15.00	123.45	
14	919.000	59.78	-2.23	2.87	0.00	-60.00	-2.94	-1.96	315.00	309.38	-1.86	2.69	-15.00	113.72	-1.42	2.80	15.00	106.59	
15	921.000	56.67	-2.47	2.67	0.00	-60.00	-3.18	-2.21	315.00	308.67	-2.09	2.44	-15.00	113.94	-1.64	2.56	15.00	123.17	
16	923.000	53.23	-2.74	2.45	0.00	-60.00	-3.46	-2.49	300.00	308.14	-2.35	2.20	-15.00	113.60	-1.90	2.29	15.00	122.93	
17	925.000	49.09	-3.09	2.12	0.00	-60.00	-3.83	-2.87	285.00	307.89	-2.70	1.85	-15.00	113.73	-2.24	1.94	15.00	122.41	
18	927.000	44.73	-3.49	1.75	0.00	-60.00	-4.25	-3.28	285.00	307.45	-3.10	1.47	0.00	113.40	-2.63	1.55	0.00	108.48	
19	929.000	40.80	-3.89	1.38	0.00	-60.00	-4.67	-3.66	285.00	306.36	-3.50	1.10	0.00	113.07	-3.02	1.15	0.00	113.42	

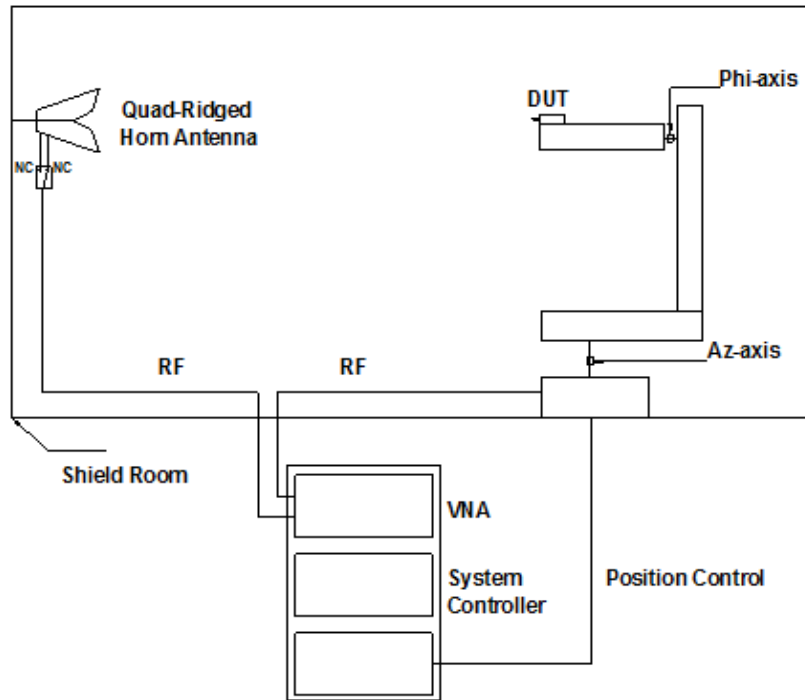


6. Measurement Condition

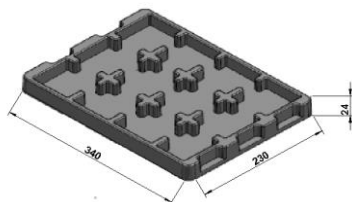
6.1 S-parameter Measurement



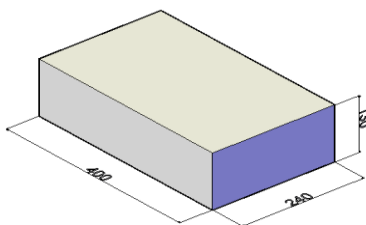
6.2 Gain Measurement



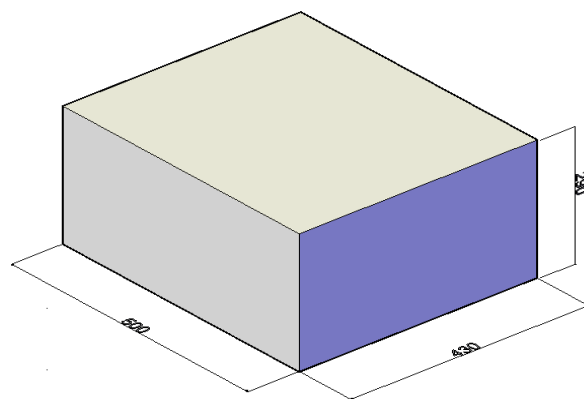
7. Package



8pcs / 1 inner sheet



40 pcs (5 inner sheets)
/ 1 inner box



160 pcs (4 inner boxes)
/ 1 outer box

8. Revision

Revision No.	Originator	Description of Change	Date of Changes
Ver-00	SY Kim	Sample Specificaton	22-May-23