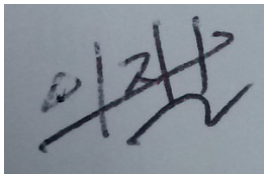


승 인 원

◆ 제 품 명: D-AUDIO2.0V PATTEN ANT

◆ 발 행 일: 2023.01.10

상기 제품에 대해 승인 합니다.

고객승인	
(주)eSSys	

Pattern (BT) Antenna

DATA Sheet

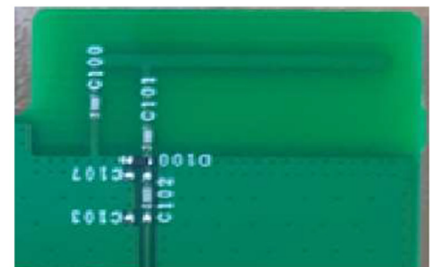
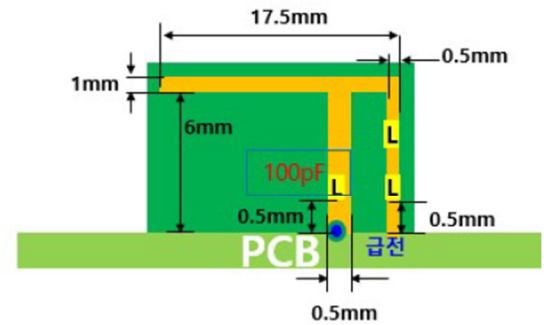
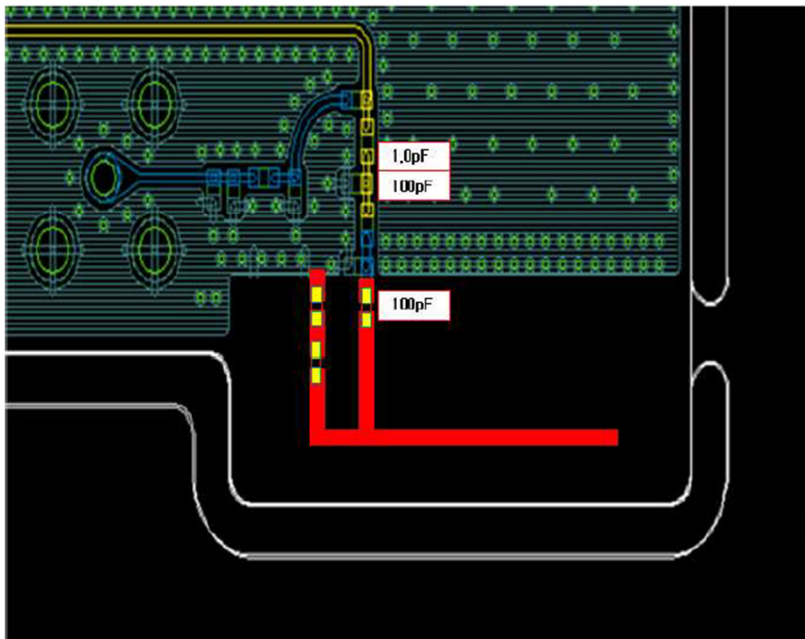
- Model : D-Audio2.0V –

- Application Frequency -	
	Band [MHz]
BT	2400 ~ 2485

GENERAL FEATURES

Part number	D-audio 2.0V
Antenna Type	PCB Pattern ANT
Applications	Bluetooth

ANTENNA INFORMATION

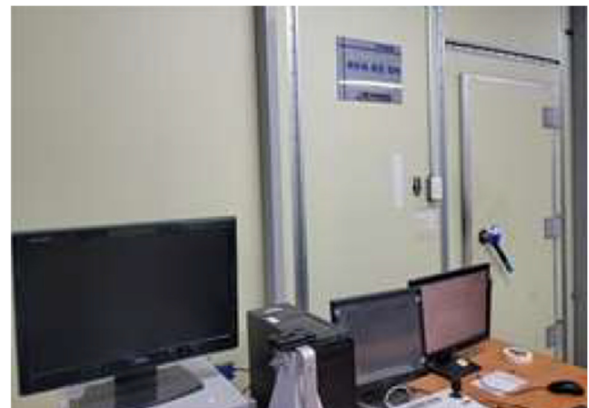
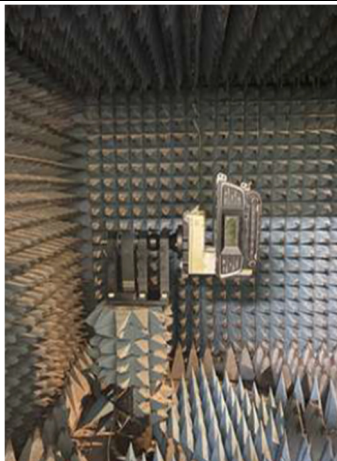


ANTENNA INFORMATION

Item	Specification		
Frequency Range [MHz]	2400 ~ 2485		
VSWR [Max]	3:1		
Bandwidth [MHz]	85		
Impedance	50Ω		
Polarization	Linear		
Freq. [MHz]	2400	2445	2485
Gain – Azimuth	-5.54	-5.74	-5.95
Gain – Elevation 1	-4.58	-4.88	-4.48
Gain – Elevation 2	-6.18	-6.75	-6.13
Gain – 3D	-5.89	-5.18	-5.48

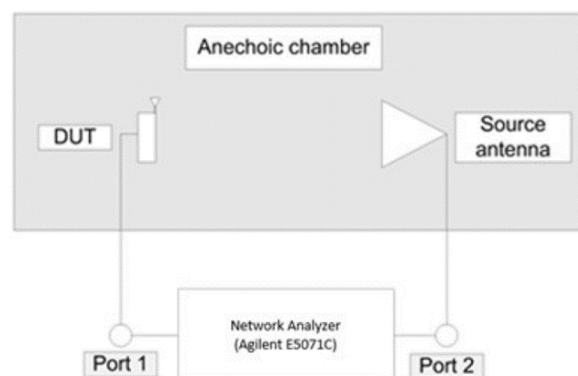
■ TEST ENVIRONMENT AND METHOD

TEST ENVIRONMENT



SW TOOL : PASSIVE V7.0

TEST METHOD



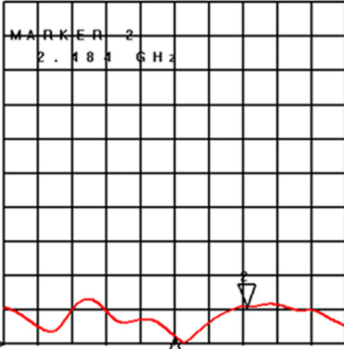
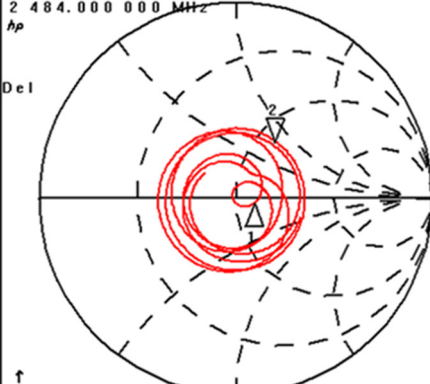
TEST EQUIPMENT

TEST EQUIPMENT	
Agilent Technologies : E5071C 	Calibration Information 

ELECTRICAL CHARACTERISTICS

No.	Freq.	PwrSum	Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta[°]	Phi[deg]	H(Theta=0)	Avg.[dBi]	Peak[dBi]	Phi[deg]	BW[deg]	E1(Phi=0)	Avg.[dBi]	Peak[dBi]	Theta[°]	BW[deg]	E2(Phi=90)	Avg.[dBi]	Peak[dBi]	Theta[°]	BW[deg]
1	2400.000		35.39	-4.51	-2.21	60.00	270.00	-4.25	-3.39	270.00	47.74		-6.65	-2.82	-30.00	34.66	-3.02	-2.21	-60.00	76.78		
2	2425.000		44.83	-3.48	-0.18	45.00	255.00	-2.98	-3.41	255.00	49.95		-5.25	-2.18	-30.00	59.76	-3.11	-3.00	-60.00	86.19		
3	2445.000		33.21	-4.79	-2.16	45.00	255.00	-4.05	-3.50	255.00	50.87		-6.24	-2.66	0.00	51.20	-2.73	-2.55	-45.00	91.37		
4	2465.000		31.43	-5.03	-2.60	45.00	255.00	-4.13	-3.10	255.00	62.43		-6.30	-3.82	-135.00	24.47	-3.67	-3.63	-45.00	96.12		
5	2485.000		30.73	-5.12	-2.78	45.00	255.00	-4.27	-3.12	240.00	60.70		-6.14	-3.23	-135.00	26.57	-4.22	-4.12	-45.00	99.41		

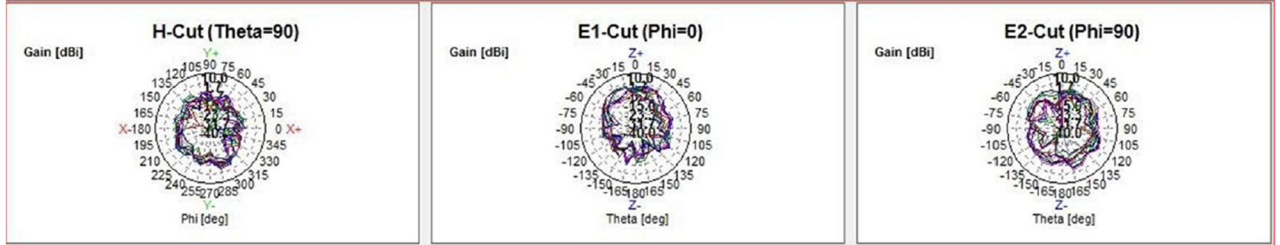
MEASUREMENT

VSWR	SMITH CHART
9 Jan 2023 06:09:32 CH3 SWR 1 / REF 1 S11 2: 2.0953 2 484.000 000 MHz  MARKER 2 2.484 GHz CH3 Markers 1: 1.2179 2: 2.40000 GHz START 2200.000 MHz STOP 2600.000 MHz	CH1 S11 1 UFS 2: 61.072 Ω 40.326 Ω 2.5838 nH 2 484.000 000 MHz  CH1 Markers 1: 60.314 Ω - 3.3477 Ω 2: 484.000 GHz START 2200.000 MHz STOP 2600.000 MHz

RADITAION PATTERN

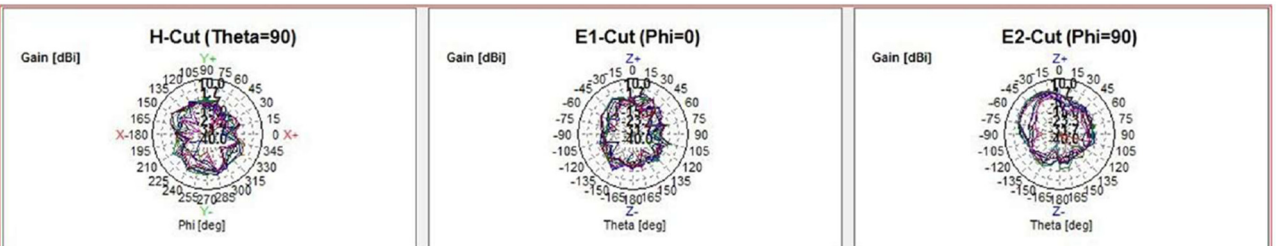
2D Gain / Efficiency

Theta



		Theta-Pi					H(Theta=)					E1(Pi=0)				E2(Pi=90)			
No.	Freq.	Eff.(%)	Avg.[dBi]	Peak[dBi]	Theta[°]	Phi[deg]	Avg.[dBi]	Peak[dBi]	Phi[deg]	BW[deg]		Avg.[dBi]	Peak[dBi]	Theta[°]	BW[deg]	Avg.[dBi]	Peak[dBi]	Theta[°]	BW[deg]
1	2400.000	12.88	-8.90	-3.05	120.00	300.00	-10.11	-3.25	285.00	21.43	-9.28	-7.48	30.00	50.72	-10.43	-6.28	45.00	31.3	
2	2425.000	16.91	-7.72	-4.10	105.00	225.00	-9.30	-4.67	285.00	22.53	-8.24	-7.58	30.00	52.52	-8.78	-6.83	45.00	27.9	
3	2445.000	20.87	-6.80	-4.02	60.00	105.00	-8.44	-5.14	300.00	22.75	-7.32	-6.56	15.00	49.63	-6.93	-6.71	60.00	28.8	
4	2465.000	15.51	-8.09	-3.43	30.00	15.00	-9.85	-4.60	300.00	24.47	-8.71	-7.86	30.00	31.86	-6.87	-6.42	165.00	23.5	
5	2485.000	15.46	-8.11	-3.87	30.00	0.00	-10.25	-5.56	255.00	16.79	-8.75	-7.87	30.00	23.43	-6.01	-5.45	165.00	23.1	
6	5150.000	11.91	-9.24	-3.52	15.00	210.00	-10.55	-4.49	315.00	10.35	-9.48	-7.42	-15.00	54.70	-9.64	-6.54	15.00	22.2	
7	5300.000	14.60	-8.36	-3.29	30.00	195.00	-11.23	-5.99	135.00	18.12	-8.66	-7.99	-15.00	37.66	-7.94	-6.29	-30.00	50.5	
8	5640.000	18.41	-7.35	-3.59	30.00	195.00	-9.14	-4.38	135.00	21.60	-7.56	-6.22	-30.00	36.95	-8.55	-5.63	-45.00	35.4	
9	5745.000	15.45	-8.11	-4.17	30.00	210.00	-9.22	-4.51	300.00	28.99	-8.10	-6.92	-15.00	45.67	-10.95	-5.04	-60.00	47.0	
10	5785.000	12.62	-8.99	-3.21	30.00	210.00	-10.07	-4.63	300.00	25.51	-8.75	-6.48	-30.00	44.94	-11.78	-5.72	-45.00	60.2	
11	5825.000	12.37	-9.08	-3.51	30.00	210.00	-10.19	-4.80	300.00	30.73	-8.57	-6.58	-45.00	48.70	-11.44	-5.58	-45.00	22.6	

Phi



		Phi-Pol'					H(Theta=					E1(Phi=0				E2(Phi=90		
No.	Freq.	Eff. [%]	Avg. [dBi]	Peak [dBi]	Theta [°]	Phi [deg]	Avg. [dBi]	Peak [dBi]	Phi [deg]	BW [deg]	Avg. [dBi]	Peak [dBi]	Theta [°]	BW [deg]	Avg. [dBi]	Peak [dBi]	Theta [°]	BW [deg]
1	2400.000	10.78	-9.67	-2.32	135.00	150.00	-9.95	-3.37	330.00	26.29	-11.53	-4.82	-150.00	21.12	-9.96	-3.49	-15.00	26.74
2	2425.000	13.73	-8.62	-3.01	150.00	150.00	-9.86	-4.31	285.00	61.84	-10.72	-3.22	-150.00	14.93	-9.04	-3.04	-15.00	31.69
3	2445.000	15.89	-7.99	-2.85	150.00	135.00	-10.24	-3.36	285.00	20.36	-10.01	-3.04	-150.00	13.14	-8.96	-2.92	-15.00	33.07
4	2465.000	11.15	-9.53	-4.46	150.00	135.00	-12.23	-5.14	285.00	16.80	-11.19	-5.21	-150.00	14.24	-12.13	-5.76	-15.00	33.40
5	2485.000	11.01	-9.58	-4.91	15.00	135.00	-12.30	-5.18	285.00	13.09	-10.99	-5.55	-150.00	15.48	-12.39	-4.95	-15.00	35.79
6	5150.000	18.99	-7.21	-3.32	30.00	255.00	-10.16	-4.04	285.00	61.50	-10.76	-5.45	15.00	15.41	-4.30	-3.53	-45.00	63.74
7	5300.000	19.29	-7.15	-2.97	45.00	255.00	-9.01	-4.70	285.00	43.46	-10.18	-5.78	15.00	22.38	-5.07	-3.79	-30.00	57.20
8	5640.000	23.01	-6.38	-2.87	30.00	255.00	-7.86	-4.73	240.00	54.04	-8.61	-5.02	-30.00	21.68	-4.72	-3.15	-60.00	71.89
9	5745.000	20.63	-6.85	-4.50	30.00	255.00	-8.33	-4.59	240.00	15.61	-9.19	-5.68	-30.00	25.18	-5.05	-4.87	-60.00	73.59
10	5785.000	16.85	-7.74	-3.56	30.00	255.00	-9.25	-4.89	150.00	23.73	-9.75	-3.76	-30.00	24.28	-6.17	-5.16	-60.00	70.34
11	5825.000	16.38	-7.86	-3.29	30.00	255.00	-9.52	-4.53	150.00	23.59	-9.45	-3.49	30.00	7.27	-6.77	-5.93	-30.00	72.42

Pattern (WiFi) Antenna

DATA Sheet

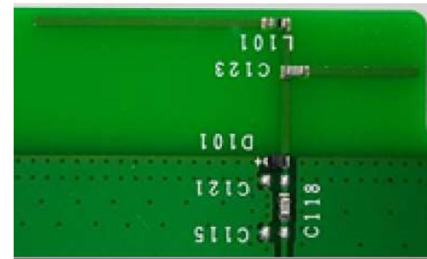
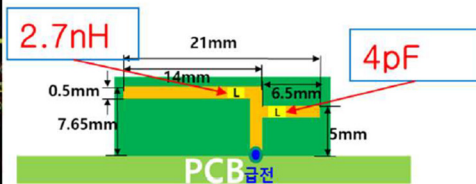
- Model : D-Audio2.0V –

- Application Frequency -	
	Band [MHz]
WiFi	2400 ~ 2485
	5150 ~ 5850

GENERAL FEATURES

Part number	D-audio 2.0V
Antenna Type	PCB Pattern ANT
Applications	WiFi

ANTENNA INFORMATION

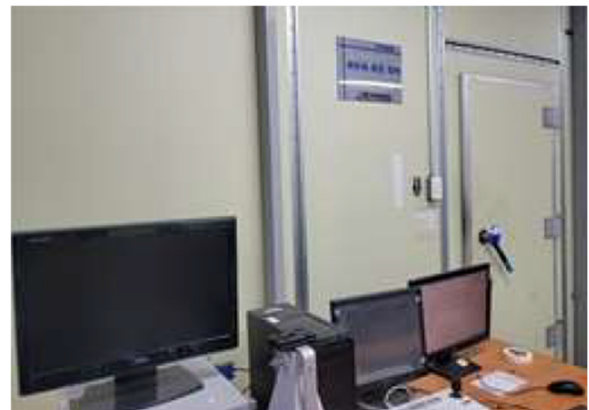


ANTENNA INFORMATION

Item	Specification					
Frequency Range [MHz]	2400 ~ 2485,					
VSWR [Max]	3:1					
Bandwidth [MHz]	85(2.4GHz), 150(5GHz)					
Impedance	50Ω					
Polarization	Linear					
Freq. [MHz]	2400	2445	2485	5150	5485	5850
Gain – Azimuth	-5.54	-5.74	-5.95	-5.88	-5.94	-5.65
Gain – Elevation 1	-4.58	-4.88	-4.48	-4.88	-5.15	-5.24
Gain – Elevation 2	-6.18	-6.75	-6.13	-6.15	-6.34	-6.24
Gain – 3D	-5.89	-5.18	-5.48	-5.57	-5.12	-5.11

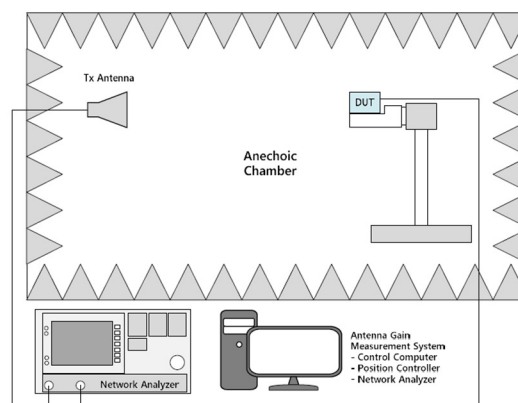
■ TEST ENVIRONMENT AND METHOD

TEST ENVIRONMENT



SW TOOL : PASSIVE V7.0

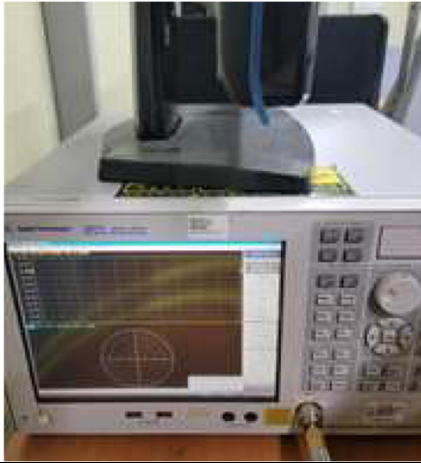
TEST METHOD



TEST EQUIPMENT

TEST EQUIPMENT

Agilent Technologies : E5071C



Calibration Information



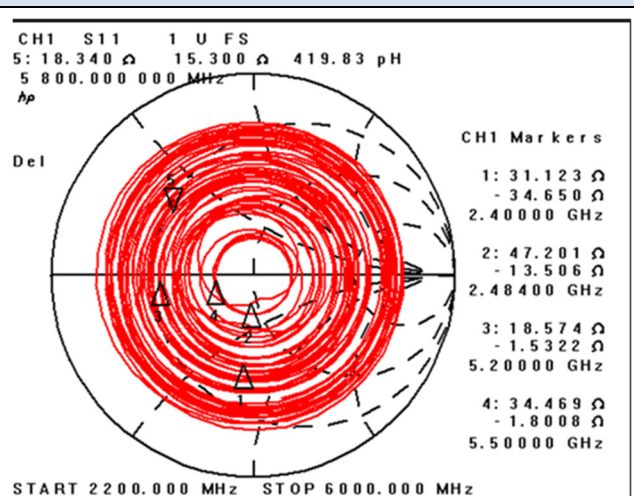
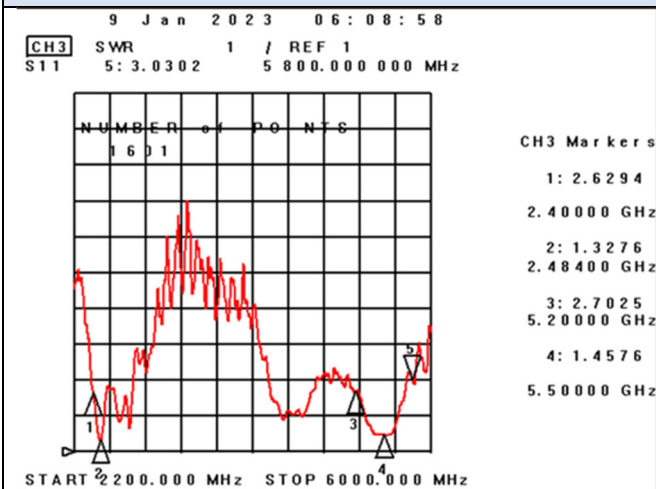
ELECTRICAL CHARACTERISTICS

No.	Freq.	PwrSurr	Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta[°]	Phi[deg]	H(Theta=)	Avg.[dBi]	Peak[dBi]	Phi[deg]	BW[deg]	E1(Phi=0)	Avg.[dBi]	Peak[dBi]	Theta[°]	BW[deg]	E2(Phi=90)	Avg.[dBi]	Peak[dBi]	Theta[°]	BW[deg]
1	2400.000	23.67	-6.26	-1.26	75.00	285.00	-7.02	-3.71	285.00	26.33	-7.25	-3.43	30.00	58.02	-7.18	-5.41	-15.00	34.12				
2	2425.000	30.64	-5.14	-0.62	150.00	135.00	-6.56	-3.40	285.00	25.45	-6.29	-2.42	30.00	63.56	-5.90	-5.68	-30.00	37.19				
3	2445.000	36.76	-4.35	-0.01	150.00	120.00	-6.23	-3.21	285.00	24.97	-5.45	-4.33	30.00	69.60	-4.82	-4.74	45.00	35.25				
4	2465.000	26.66	-5.74	-0.43	150.00	120.00	-7.87	-3.86	285.00	23.67	-6.77	-4.60	30.00	59.90	-5.74	-4.30	165.00	24.56				
5	2485.000	26.47	-5.77	-0.04	150.00	120.00	-8.15	-2.57	285.00	22.42	-6.71	-4.68	30.00	53.39	-5.11	-4.42	165.00	23.80				
6	5150.000	30.90	-5.10	-0.61	30.00	255.00	-7.34	-3.42	285.00	78.13	-7.06	-3.20	15.00	55.74	-3.19	-3.10	-45.00	61.41				
7	5300.000	33.90	-4.70	-0.18	45.00	240.00	-6.97	-2.20	285.00	74.62	-6.34	-4.12	15.00	66.07	-3.26	-2.97	-30.00	56.71				
8	5640.000	41.42	-3.83	-0.77	45.00	255.00	-5.44	-2.34	255.00	69.49	-5.04	-4.90	-30.00	33.78	-3.21	-2.46	-45.00	67.53				
9	5745.000	36.08	-4.43	-0.96	30.00	225.00	-5.74	-3.02	240.00	35.06	-5.60	-4.22	-30.00	42.00	-4.05	-3.67	-60.00	70.68				
10	5785.000	29.47	-5.31	-0.18	30.00	225.00	-6.63	-2.82	150.00	36.20	-6.21	-2.54	-30.00	43.00	-5.11	-4.47	-45.00	69.74				
11	5825.000	28.75	-5.41	-0.44	30.00	225.00	-6.83	-2.43	150.00	30.10	-5.98	-2.18	-30.00	50.25	-5.50	-4.21	-45.00	66.95				

MEASUREMENT

VSWR

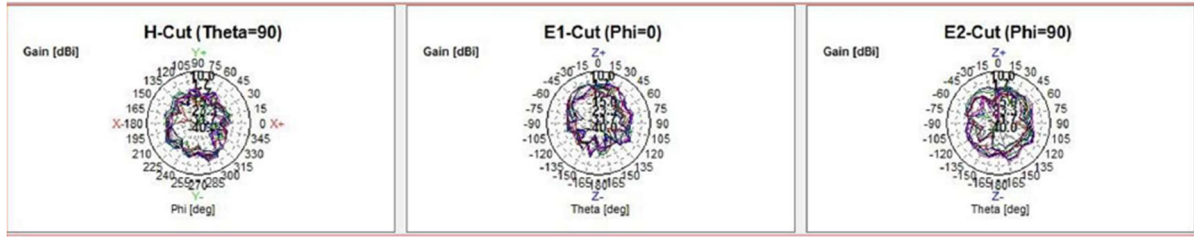
SMITH CHART



RADITAION PATTERN

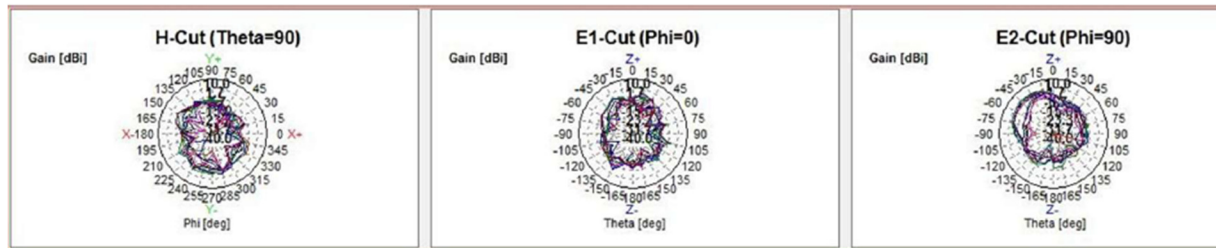
2D Gain / Efficiency

Theta



No.	Freq.	Theta-Pol	Eff. [%]	Avg. [dBi]	Peak [dBi]	Theta [°]	Phi [deg]	Avg. [dBi]	Peak [dBi]	Phi [deg]	BW [deg]	Avg. [dBi]	Peak [dBi]	Theta [°]	BW [deg]	Avg. [dBi]	Peak [dBi]	Theta [°]	BW [deg]
1	2400.000		12.88	-8.90	-3.05	120.00	300.00	-10.11	-3.25	285.00	21.43	-9.28	-7.48	30.00	50.72	-10.43	-6.28	45.00	31.3
2	2425.000		16.91	-7.72	-4.10	105.00	225.00	-9.30	-4.67	285.00	22.53	-8.24	-7.58	30.00	52.52	-8.78	-6.83	45.00	27.9
3	2445.000		20.87	-6.80	-4.02	60.00	105.00	-8.44	-5.14	300.00	22.75	-7.32	-6.56	15.00	49.63	-6.93	-6.71	60.00	28.8
4	2465.000		15.51	-8.09	-3.43	30.00	15.00	-9.85	-4.60	300.00	24.47	-8.71	-7.86	30.00	31.86	-6.87	-6.42	165.00	23.5
5	2485.000		15.46	-8.11	-3.87	30.00	0.00	-10.25	-5.56	255.00	16.79	-8.75	-7.87	30.00	23.43	-6.01	-5.45	165.00	23.1
6	5150.000		11.91	-9.24	-3.52	15.00	210.00	-10.55	-4.49	315.00	10.35	-9.48	-7.42	-15.00	54.70	-9.64	-6.54	15.00	22.2
7	5300.000		14.60	-8.36	-3.29	30.00	195.00	-11.23	-5.99	135.00	18.12	-8.66	-7.99	-15.00	37.66	-7.94	-6.29	-30.00	50.5
8	5640.000		18.41	-7.35	-3.59	30.00	195.00	-9.14	-4.38	135.00	21.60	-7.56	-6.22	-30.00	36.95	-8.55	-5.63	-45.00	35.4
9	5745.000		15.45	-8.11	-4.17	30.00	210.00	-9.22	-4.51	300.00	28.99	-8.10	-6.92	-15.00	45.67	-10.95	-5.04	-60.00	47.0
10	5785.000		12.62	-8.99	-3.21	30.00	210.00	-10.07	-4.63	300.00	25.51	-8.75	-6.48	-30.00	44.94	-11.78	-5.72	-45.00	60.2
11	5825.000		12.37	-9.08	-3.51	30.00	210.00	-10.19	-4.80	300.00	30.73	-8.57	-6.58	-45.00	48.70	-11.44	-5.58	-45.00	22.6

Phi



No.	Freq.	Phi-Pol	Eff. [%]	Avg. [dBi]	Peak [dBi]	Theta [°]	Phi [deg]	Avg. [dBi]	Peak [dBi]	Phi [deg]	BW [deg]	Avg. [dBi]	Peak [dBi]	Theta [°]	BW [deg]	Avg. [dBi]	Peak [dBi]	Theta [°]	BW [deg]
1	2400.000		10.78	-9.67	-2.32	135.00	150.00	-9.95	-3.37	330.00	26.29	-11.53	-4.82	-150.00	21.12	-9.96	-3.49	-15.00	26.74
2	2425.000		13.73	-8.62	-3.01	150.00	150.00	-9.86	-4.31	285.00	61.84	-10.72	-3.22	-150.00	14.93	-9.04	-3.04	-15.00	31.69
3	2445.000		15.89	-7.99	-2.85	150.00	135.00	-10.24	-3.36	285.00	20.36	-10.01	-3.04	-150.00	13.14	-8.96	-2.92	-15.00	33.07
4	2465.000		11.15	-9.53	-4.46	150.00	135.00	-12.23	-5.14	285.00	16.80	-11.19	-5.21	-150.00	14.24	-12.13	-5.76	-15.00	33.40
5	2485.000		11.01	-9.58	-4.91	15.00	135.00	-12.30	-5.18	285.00	13.09	-10.99	-5.55	-150.00	15.48	-12.39	-4.95	-15.00	35.79
6	5150.000		18.99	-7.21	-3.32	30.00	255.00	-10.16	-4.04	285.00	61.50	-10.76	-5.45	15.00	15.41	-4.30	-3.53	-45.00	63.74
7	5300.000		19.29	-7.15	-2.97	45.00	255.00	-9.01	-4.70	285.00	43.46	-10.18	-5.78	15.00	22.38	-5.07	-3.79	-30.00	57.20
8	5640.000		23.01	-6.38	-2.87	30.00	255.00	-7.86	-4.73	240.00	54.04	-8.61	-5.02	-30.00	21.68	-4.72	-3.15	-60.00	71.89
9	5745.000		20.63	-6.85	-4.50	30.00	255.00	-8.33	-4.59	240.00	15.61	-9.19	-5.68	-30.00	25.18	-5.05	-4.87	-60.00	73.59
10	5785.000		16.85	-7.74	-3.56	30.00	255.00	-9.25	-4.89	150.00	23.73	-9.75	-3.76	-30.00	24.28	-6.17	-5.16	-60.00	70.34
11	5825.000		16.38	-7.86	-3.29	30.00	255.00	-9.52	-4.53	150.00	23.59	-9.45	-3.49	30.00	7.27	-6.77	-5.93	-30.00	72.42