

东莞市同乐电子科技有限公司

规格承认书

SPECIFICATION FOR APPROVAL

客 户 Shenzhen Kingone Information Technology Co., Ltd.
CUSTOMER: _____

客 户 料 号 SW00000191
CUSTOMER NO: _____

品 名 FPC antenna
PART NAME: _____

供 方 料 号 G118-10041-A
SUPPLIER NO: _____

日期 Date: 2024.05.22

客户确认 CUSTOMER APPROVED BY		
APPROVAL	CHIEF	SUPERVISOR

供方确认 SUPPLIER SIGNATURE		
APPROVAL	CHECK	DESIGN
Darren	Jerry	Patrick

SH-RD-F04-A

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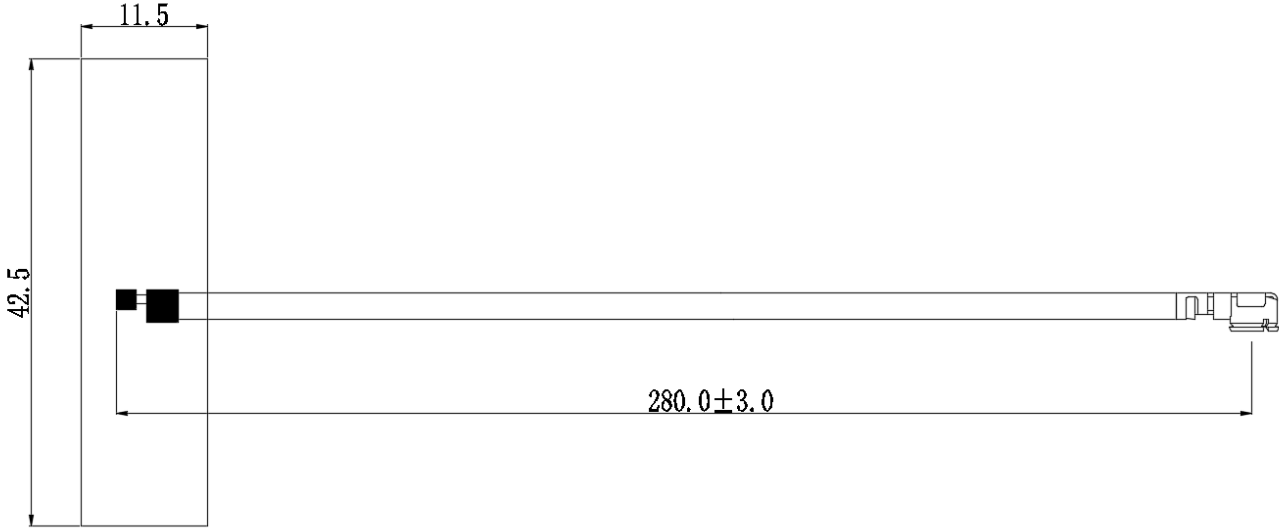
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1. 产品规格（Product Specification）

产品图片（Product Photo）	
	
A. 电性参数（Electrical Characteristics）	
频率（Frequency）	2400 ~ 2500 MHz & 5150 ~ 5825 MHz
电压驻波比（V.S.W.R）	<= 2.0 @ 2400 ~ 2500 MHz & 5150 ~ 5825 MHz
返回损失（Return Loss）	<=-10dB @ 2400 ~ 2500 MHz & 5150 ~ 5825 MHz
天线增益（Antenna Gain）	3.07dBi @ 2400 ~ 2500 MHz 4.92dBi @ 5150 ~ 5850 MHz
辐射效率（Radiation Efficiency）	50 ~ 60 % @ 2400 ~ 2500 MHz 65 ~ 75 % @ 5150 ~ 5850 MHz
极化方式（Polarization）	（Linear）
阻抗（Impedance）	50 Ohm
天线类型（Antenna Type）	Dipole
B. 材质及机械特性（Material & Mechanical Characteristics）	
辐射材质（Material of Radiator）	FPCB
线材类型（Cable Type）	1.13（O.D. 1.13 mm Black）L=280.0mm
接头类型（Connector Type）	(4L IPEX for O.D. 1.13mm Coaxial Cable)
拉力测试（Pull Test）	>= 1.0 Kg
C. 环境因素（Environmental）	
工作温度（Operation Temperature）	- 40 °C ~ + 75 °C
储存温度（Storage Temperature）	- 40 °C ~ + 85 °C

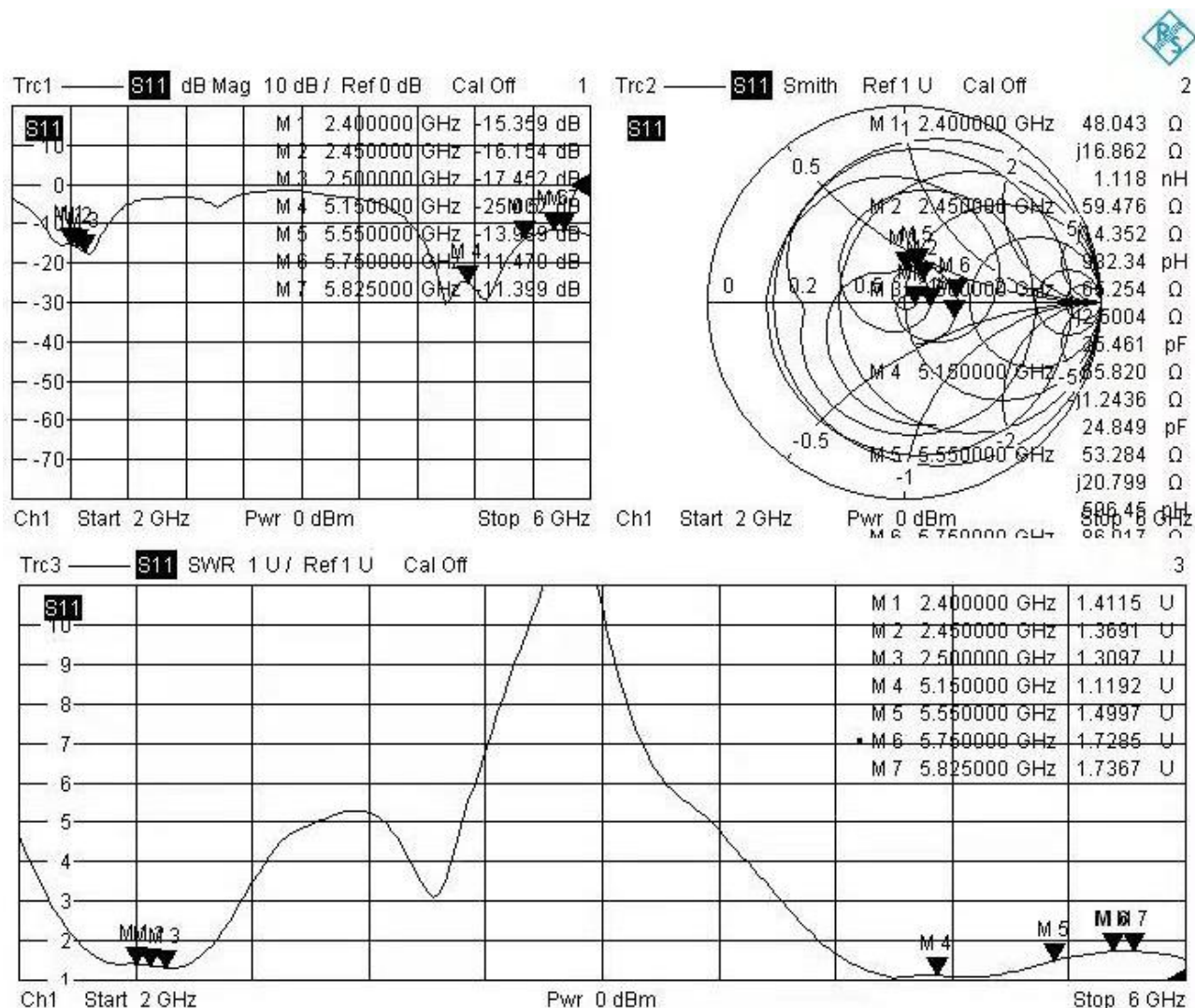
2. 网络参数测试数据 (S Parameter Test Data)



(ROHDE&SCHWARZ) ZVL Vector Network Analyzer

Test frequency range: 9KHz-6GHz

testing capability: V.S.W.R、Return Loss、Smith



3. 天线辐射场型测试 (Antenna - Radiation Pattern Test)

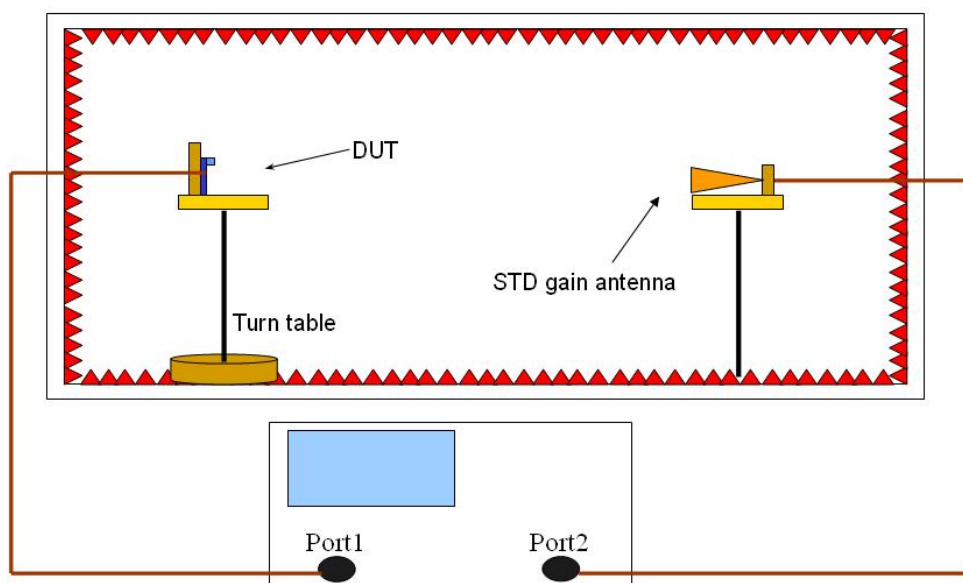
测试设备规格 (Testing Equipment Specification) :

天线微波暗室尺寸 (Antenna Anechoic Chamber Dimension) : 6 x 3 x 3 米 (m)

屏蔽性能 (Isolation) : >100dB @ 1 MHz ~ 10 GHz

测试设备 (Testing Equipment) : (ROHDE&SCHWARZ) ZVL Vector Network Analyzer

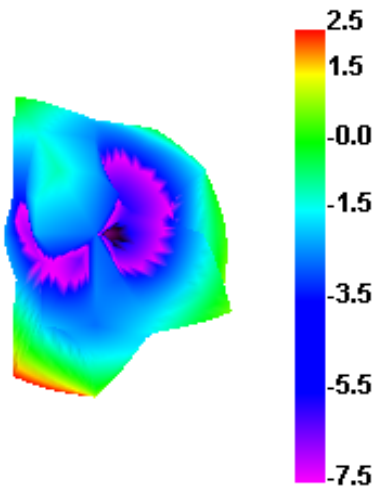
接收天线 (Received Antenna) : 0.7 ~ 6.0 GHz Bipolar horn calibration antenna
(0.7 ~ 6.0 GHz for Gain Calibration Double Ridged Horn Antenna)



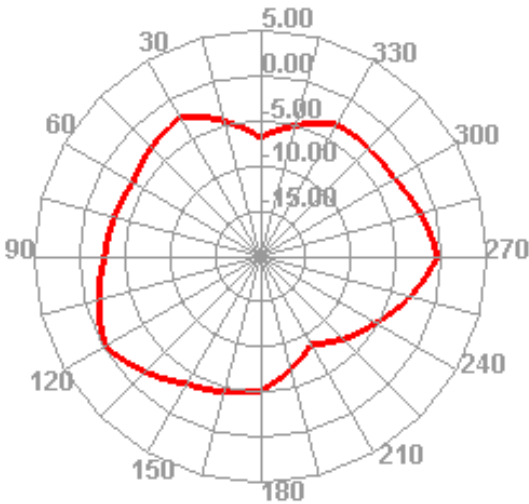
4. 效率及增益测试数据（Efficiency and Gain Test Data）

Passive Test For WIFI2400										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivity (dBi)	Beamwidth (3dB)
2400	60.37	-2.19	2.45	0.3	22.806	37.569	2.45	-8.9	4.64	30
2410	57.07	-2.44	2.22	0.07	22.099	34.967	2.22	-11.12	4.66	30
2420	56.81	-2.46	2.25	0.1	22.653	34.154	2.25	-13.33	4.7	30
2430	59.52	-2.25	2.44	0.29	24.454	35.064	2.44	-15.27	4.7	30
2440	63.11	-2	2.7	0.55	26.507	36.606	2.7	-16.38	4.7	30
2450	63.41	-1.98	2.74	0.59	27.151	36.257	2.74	-17.01	4.72	30
2460	64.29	-1.92	2.86	0.71	28.029	36.262	2.86	-16.67	4.78	30
2470	65.38	-1.85	3.04	0.89	29.072	36.305	3.04	-16.11	4.88	30
2480	63.71	-1.96	2.98	0.83	28.94	34.774	2.98	-15.28	4.93	30
2490	63.79	-1.95	3	0.85	29.576	34.213	3	-13.98	4.95	30
2500	65.48	-1.84	3.07	0.92	30.901	34.582	3.07	-13.1	4.91	30

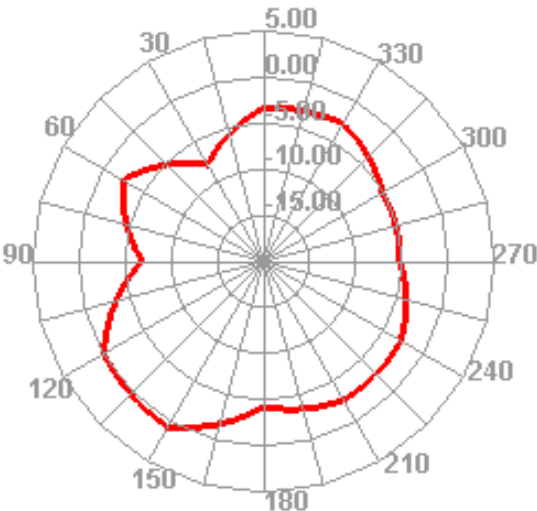
2400.000MHz



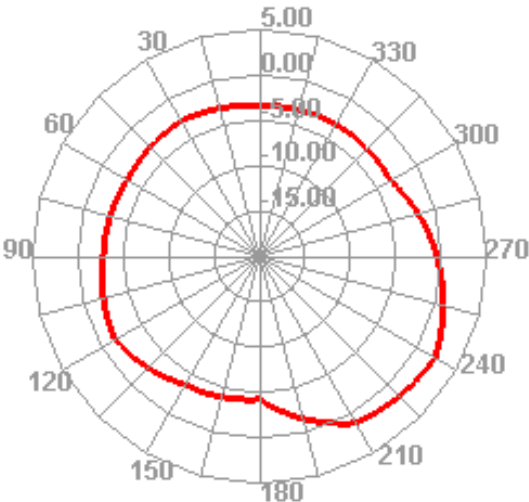
2400.000MHz H



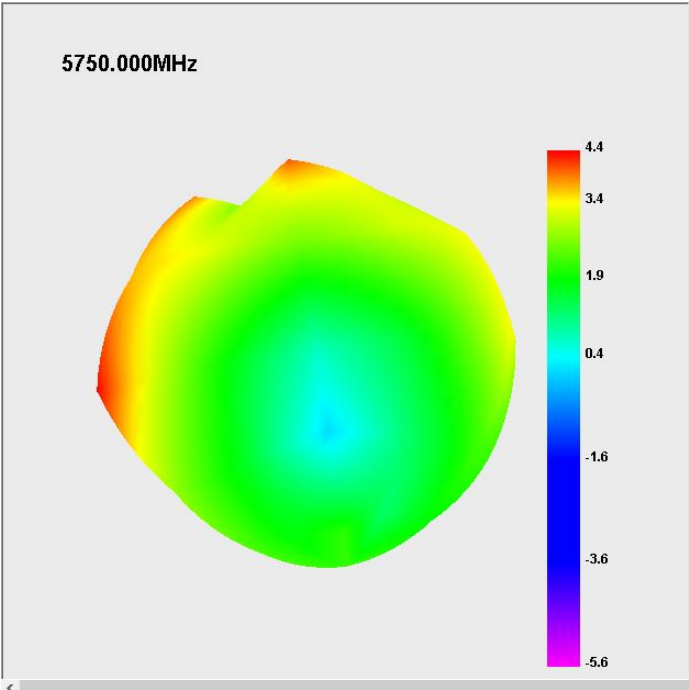
2400.000MHz E1



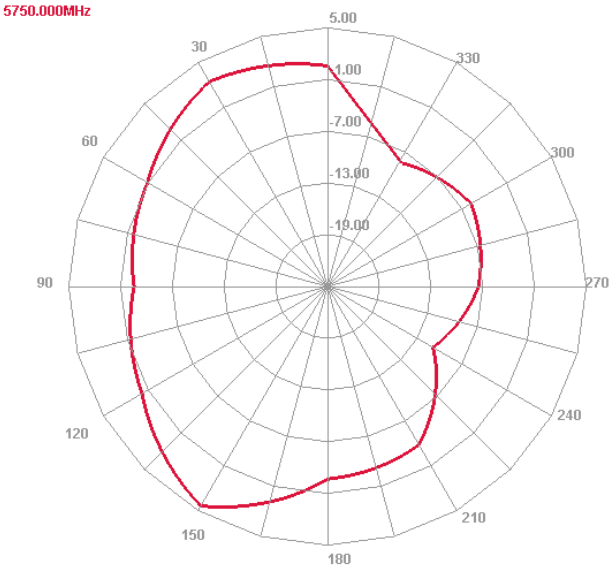
2400.000MHz E2



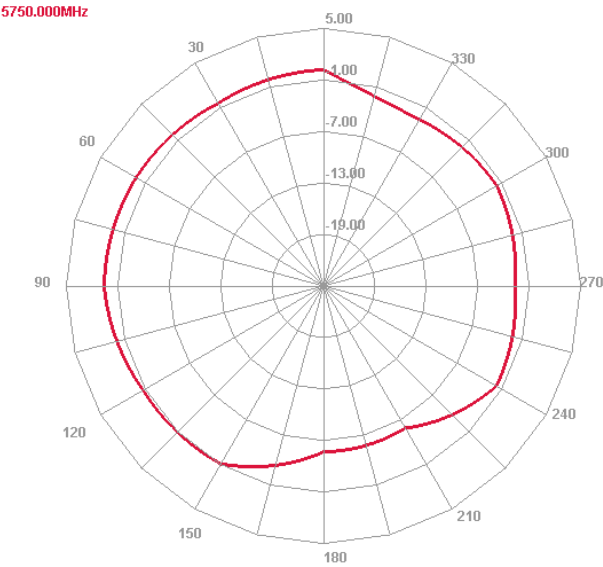
Passive Test For WIFI-5G										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	irectivity (dBi)	Beamwidth (3dB)
5150	66.52	-1.77	4.25	2.1	28.457	38.059	4.25	-14.74	7.08	60
5250	63.99	-1.94	4.29	2.14	27.598	36.389	4.29	-15.21	7.14	60
5350	62.13	-2.07	4.31	2.16	26.889	35.237	4.31	-16.17	6.56	60
5450	62.67	-2.03	4.52	2.37	27.145	35.526	4.52	-16.74	5.9	60
5550	63.5	-1.97	4.92	2.77	27.574	35.929	4.92	-17.27	5.81	30
5650	62.44	-2.05	4.64	2.49	27.108	35.335	4.64	-17.6	6.28	30
5750	66.8	-1.75	4.39	2.24	28.933	37.867	4.39	-18.02	5.44	30
5850	69.03	-1.61	4.15	2	29.901	39.127	4.15	-18.62	5.25	30



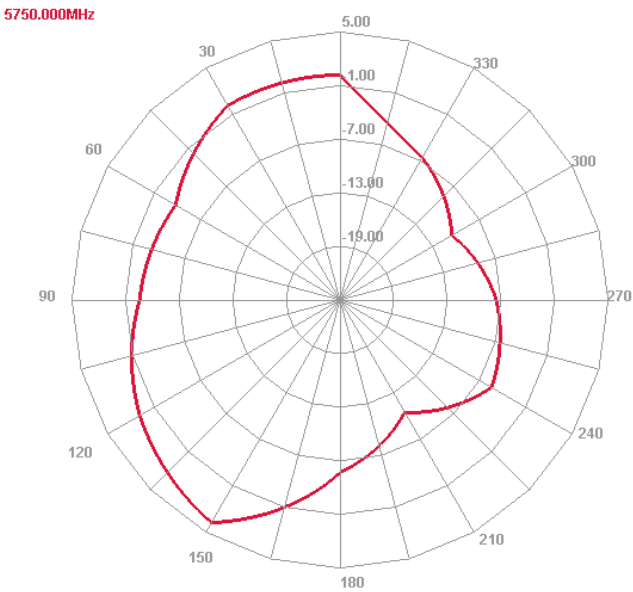
Horizontal



E1 Face

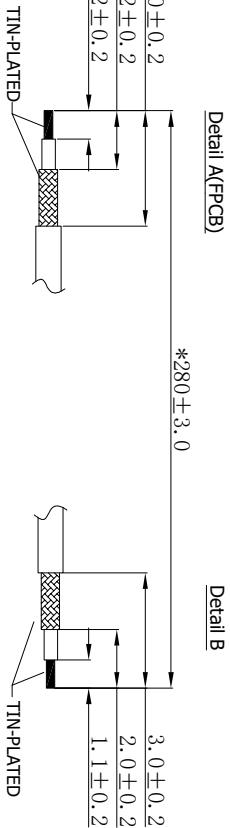
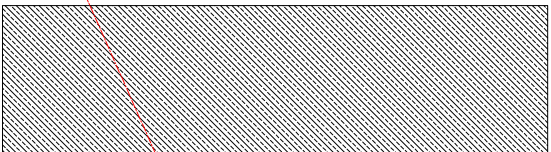
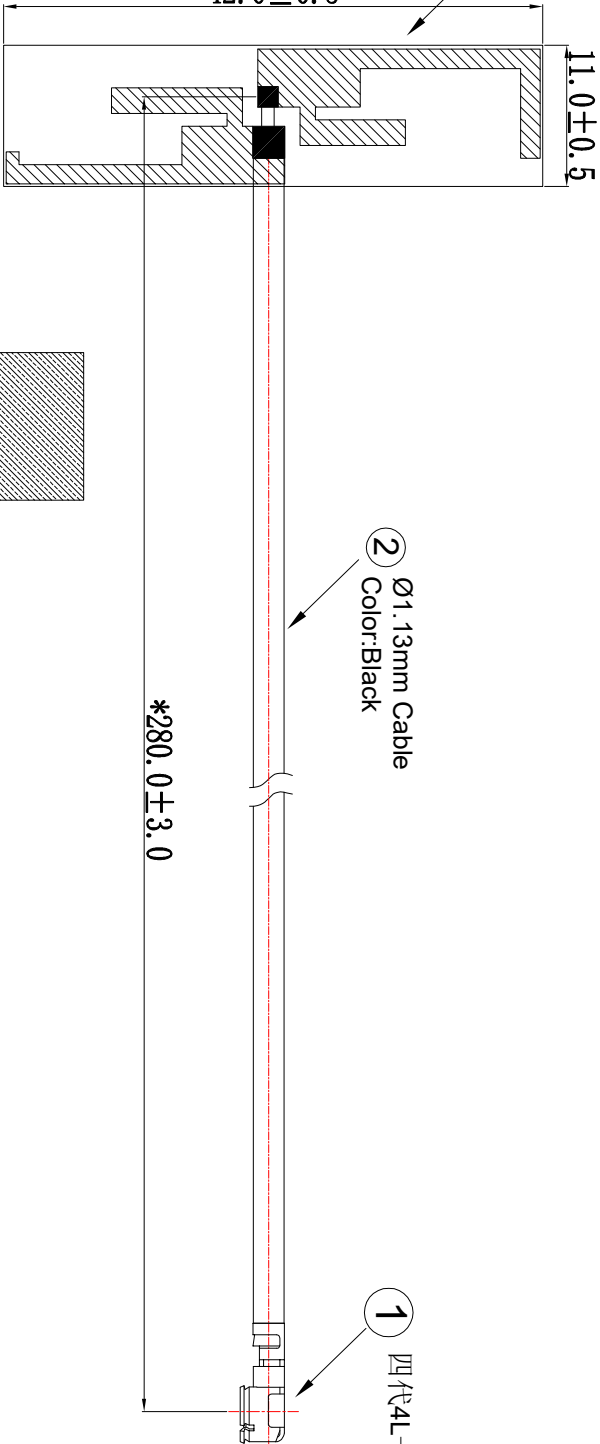


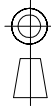
E2 Face



ROHS

DATE	DESCRIPTION	APPROVER
24.05.22	New drawing	Darren Cheng



TITLE:		内置双频天线																	
TL P/N:		G118-10041-A																	
CUSTOMER:																			
CLS. P/N:																			
DIMENSIONS TOLERANCES UNLESS OTHERWISE NOTED																			
一般公差 TOLERANCE		<table><tr><td>.XXX</td><td>+0.1</td><td>XX.</td><td>+5</td></tr><tr><td>.XX</td><td>+0.5</td><td></td><td></td></tr><tr><td>X</td><td>+1.0</td><td></td><td></td></tr><tr><td>X.</td><td>+3.0</td><td></td><td></td></tr></table>		.XXX	+0.1	XX.	+5	.XX	+0.5			X	+1.0			X.	+3.0		
.XXX	+0.1	XX.	+5																
.XX	+0.5																		
X	+1.0																		
X.	+3.0																		
SHEET: 1/1		SCALE: NONE																	
UNIT: mm		REV:X0																	
		<table><tr><td>APPROVED</td><td>Darren Cheng</td></tr><tr><td>CHECKED</td><td>Colin.Guo</td></tr><tr><td>DRAWED</td><td>John.Liu</td></tr></table>		APPROVED	Darren Cheng	CHECKED	Colin.Guo	DRAWED	John.Liu										
APPROVED	Darren Cheng																		
CHECKED	Colin.Guo																		
DRAWED	John.Liu																		

4	TL-3M421101A	3M背胶：42.0*11.0 *TO. 1MM 带撕口	1
3	TL-FN3523-F01	FPCB线路板：表面附黑油；SIZE:42.0*11.0*TO. 1mm	1
2	TL-C0113B01	φ1.13 黑色同轴线 50Ω；L=280.0mm	1
1	TL-IP04LO1A	IPEX 4L端子；For φ1.13 Coaxial Cable	1
No.	Part Number	Name Material	Describe Q' ty

东莞市同乐电子科技有限公司

规格承认书

SPECIFICATION FOR APPROVAL

客 户

CUSTOMER:

Shenzhen Kingone Information Technology Co., Ltd.

客 户 料 号

CUSTOMER NO:

SW00000192

品 名

PART NAME:

FPC antenna

供 方 料 号

SUPPLIER NO:

G118-10042-A

日期 Date: 2024.05.22

客户确认 CUSTOMER APPROVED BY		
APPROVAL	CHIEF	SUPERVISOR

供方确认 SUPPLIER SIGNATURE		
APPROVAL	CHECK	DESIGN
Darren	Jerry	Patrick

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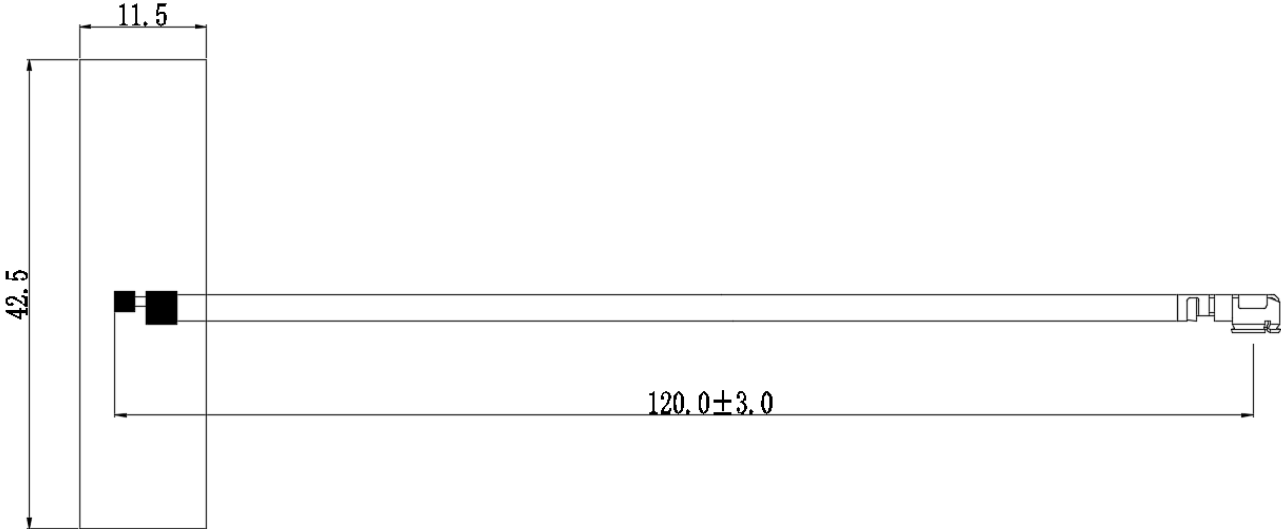
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产品图片（Product Photo）	
	
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频率（Frequency）	2400 ~ 2500 MHz & 5150 ~ 5825 MHz
电压驻波比（V.S.W.R）	<= 2.0 @ 2400 ~ 2500 MHz & 5150 ~ 5825 MHz
返回损失（Return Loss）	<=-10dB @ 2400 ~ 2500 MHz & 5150 ~ 5825 MHz
天线增益（Antenna Gain）	3.58dBi @ 2400 ~ 2500 MHz 4.98dBi @ 5150 ~ 5850 MHz
辐射效率（Radiation Efficiency）	55 ~ 65 % @ 2400 ~ 2500 MHz 65 ~ 75 % @ 5150 ~ 5850 MHz
极化方式（Polarization）	（Linear）
阻抗（Impedance）	50 Ohm
天线类型（Antenna Type）	Dipole
B. 材质及机械特性（Material & Mechanical Characteristics）	
辐射材质（Material of Radiator）	FPCB
线材类型（Cable Type）	1.13（O.D. 1.13 mm Black）L=120.0mm
接头类型（Connector Type）	4L IPEX for O.D. 1.13mm Coaxial Cable
拉力测试（Pull Test）	>= 1.0 Kg
C. 环境因素（Environmental）	
工作温度（Operation Temperature）	- 40 °C ~ + 75 °C
储存温度（Storage Temperature）	- 40 °C ~ + 85 °C

2. 网络参数测试数据 (S Parameter Test Data)

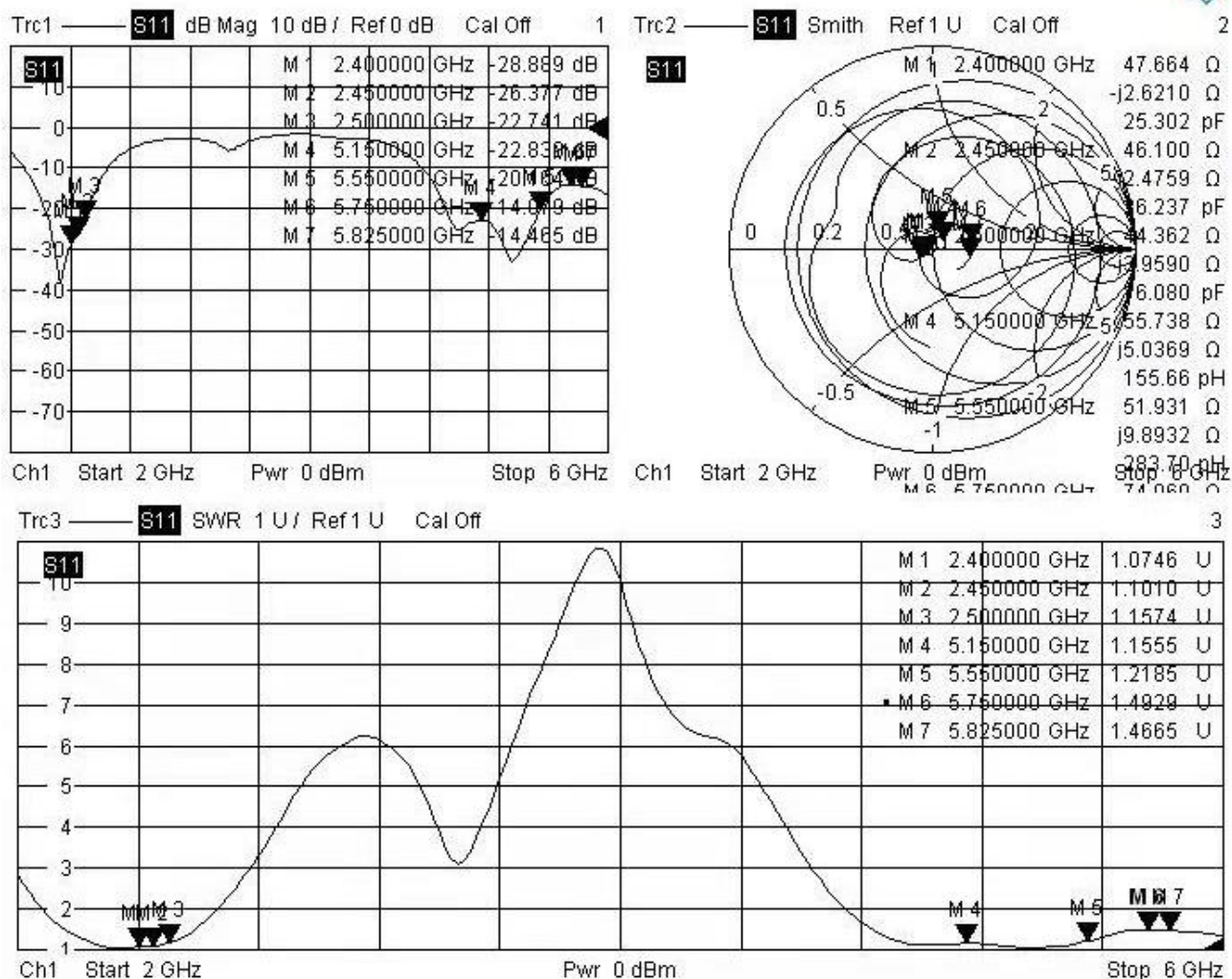


(ROHDE&SCHWARZ) ZVL Analog Network Analyzer

Test frequency range: 9KHz-6GHz

testing capability: V.S.W.R、Return Loss、

Smith



3. 天线辐射场型测试 (Antenna - Radiation Pattern Test)

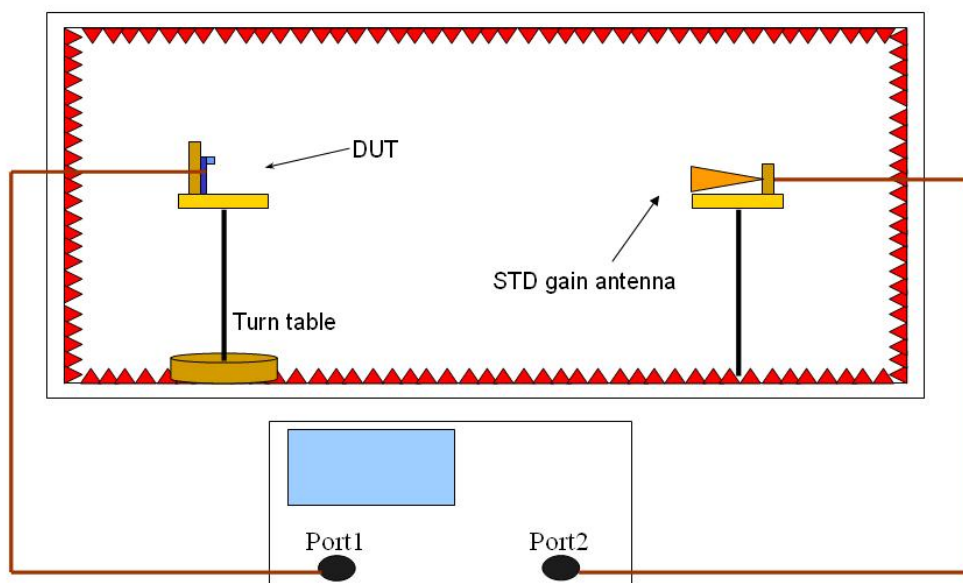
测试设备规格 (Testing Equipment Specification) :

天线微波暗室尺寸 (Antenna Anechoic Chamber Dimension) : 6 x 3 x 3 米 (m)

屏蔽性能 (Isolation) : >100dB @ 1 MHz ~ 10 GHz

测试设备 (Testing Equipment) : (ROHDE&SCHWARZ) ZVL Analog Network Analyzer

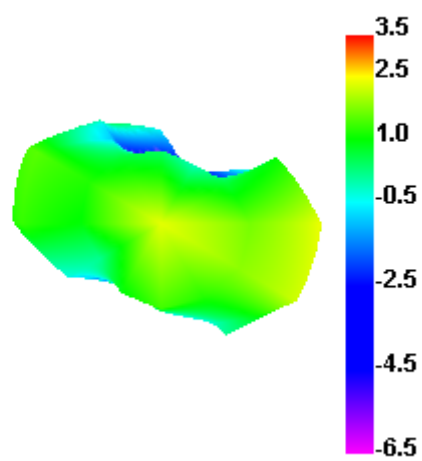
接收天线 (Received Antenna) : 0.7 ~ 6.0 GHz Bipolar horn calibration
antenna (0.7 ~ 6.0 GHz for Gain Calibration Double Ridged Horn Antenna)



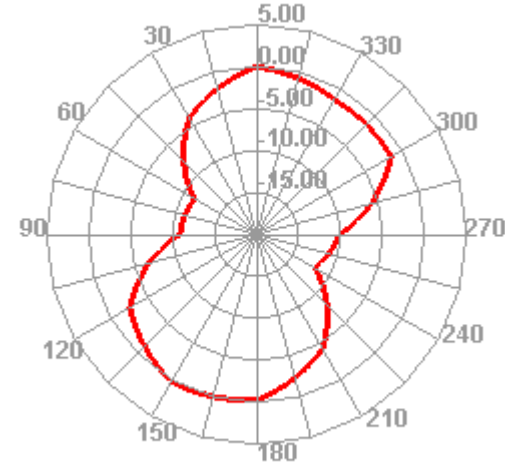
4. 效率及增益测试数据（Efficiency and Gain Test Data）

Passive Test For WIFI2400										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	irectivity (dBi)	Beamwidth (3dB)
2400	72.74	-1.38	3.39	1.24	33.842	38.9	3.39	-12.53	4.77	0
2410	74.31	-1.29	3.51	1.36	34.516	39.795	3.51	-11.99	4.8	0
2420	74.57	-1.27	3.58	1.43	34.526	40.044	3.58	-12.26	4.85	0
2430	72.71	-1.38	3.55	1.4	33.563	39.143	3.55	-13.2	4.93	30
2440	70.34	-1.53	3.44	1.29	32.209	38.126	3.44	-13.32	4.97	30
2450	69.29	-1.59	3.36	1.21	31.488	37.8	3.36	-13.54	4.96	30
2460	66.54	-1.77	3.08	0.93	30.034	36.508	3.08	-14.51	4.85	30
2470	64.23	-1.92	3.03	0.88	28.913	35.317	3.03	-15.39	4.95	30
2480	65.49	-1.84	3.25	1.1	29.478	36.013	3.25	-16.28	5.09	30
2490	67.34	-1.72	3.4	1.25	30.473	36.872	3.4	-16.78	5.12	0
2500	65.96	-1.81	3.36	1.21	29.941	36.023	3.36	-17.55	5.17	0

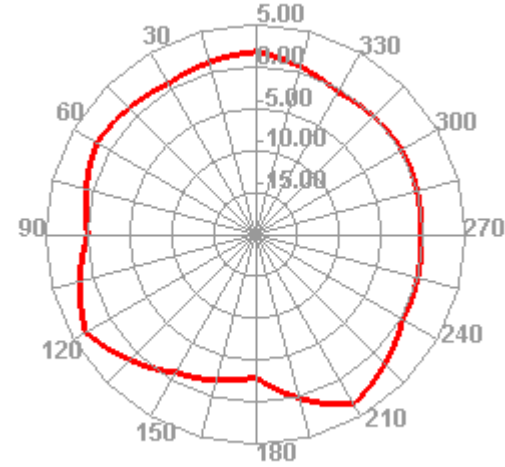
2410.000MHz



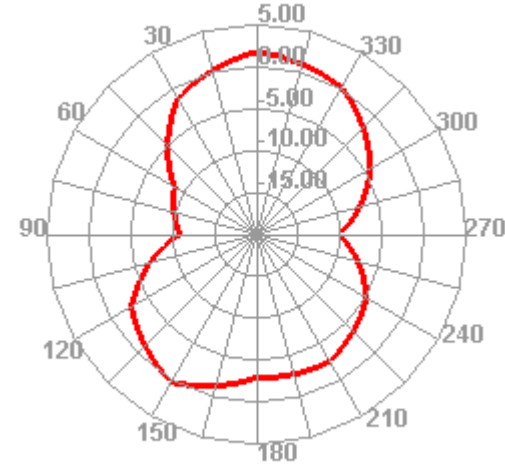
2410.000MHz H



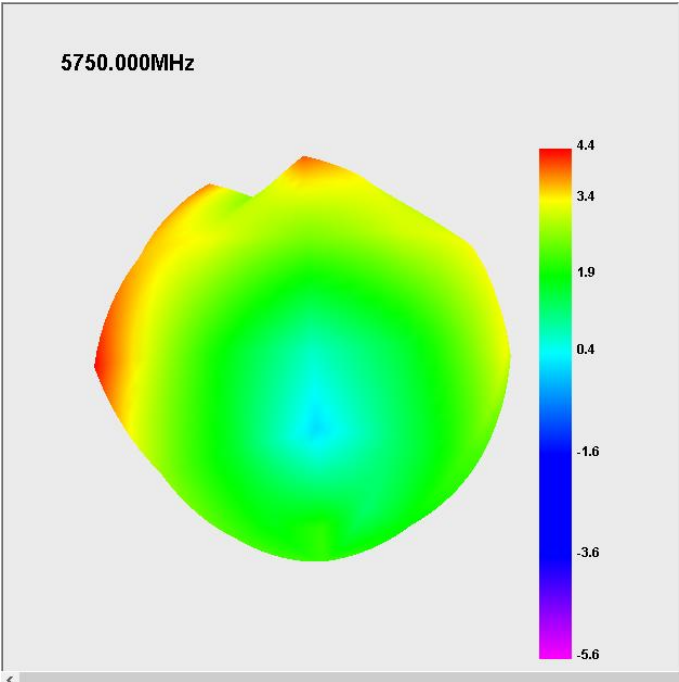
2410.000MHz E1



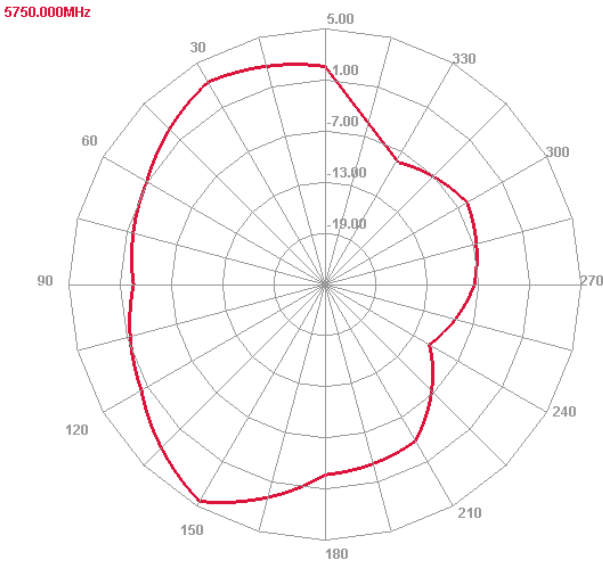
2410.000MHz E2



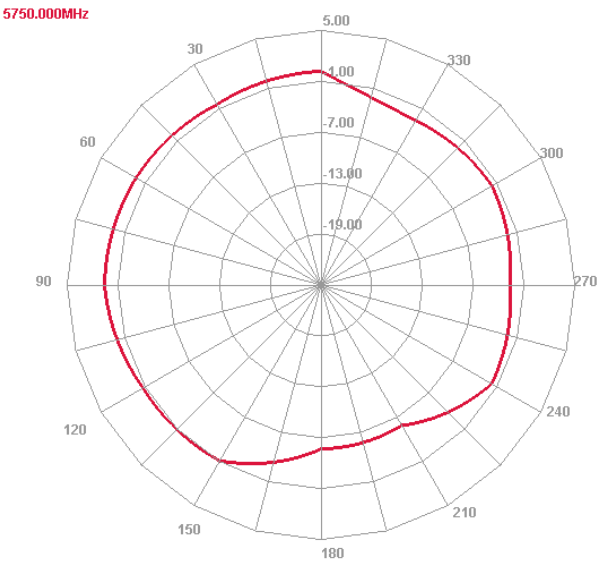
Passive Test For WIFI-5G										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)
5150	62.9	-2.01	4.54	2.39	29.627	33.269	4.54	-22.96	6.55	60
5250	65.61	-1.83	4.83	2.68	30.899	34.712	4.83	-22.45	6.66	60
5350	67.16	-1.73	4.98	2.83	31.621	35.543	4.98	-19.55	6.71	60
5450	66.87	-1.75	4.99	2.84	31.481	35.391	4.99	-17.3	6.73	60
5550	65.84	-1.82	4.86	2.71	30.973	34.864	4.86	-17.08	6.68	60
5650	66.42	-1.78	4.83	2.68	31.289	35.128	4.83	-19.45	6.61	60
5750	64.77	-1.89	4.39	2.24	30.594	34.179	4.39	-22.59	6.48	60
5850	63.04	-2	4.15	2	29.828	33.208	4.15	-23.61	6.36	60



Horizontal



E1 Face



E2 Face

