

Shenzhen YUN DING Communication Electronics Co. LTD

TEL: +86 0755-23073599

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E-mail:wht0809@163.com

APPROVAL

CUSTOMER : TOPLEO

DESCRIPTION : DA904-WIFI2.4/5G-1.13-L50

PART NO. : 8189-WiFi 2.4G

CUS PART NO. : 8189- Single WiFi without Bluetooth module

DATE : 2022-9-20

YUN DING SIGN

ENGINEERING DEPARTMENT	Q C DEPARTMENT	SALES DEPARTMENT
吴淑仪	刘丽	王洪涛

客户承认签章

ENGINEERING DEPARTMENT	Q C DEPARTMENT	PURCHASING DEPARTMENT
李龙波	魏仟	陆雪萍

TEL: 0755 - 23073599 / 150 1794 1162

* Approval in duplicate, please signed by your company.

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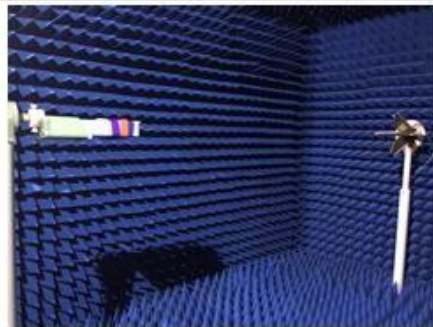
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1、 Test items and setups

	Test items	Setups
1. S-parameter	1. Return Loss 2. VSWR	ET: Agilent E5071B HP 8753D
2. Active	1. TRP 2. TIS	1. Dark booth: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2.Integrated Tester: Agilent 8960 E5515B ×2 StarPoint SP6011
3.Passive	1. Gain 2. Efficiency	1. Dark booth: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. ET: Agilent E5071B HP 8753D



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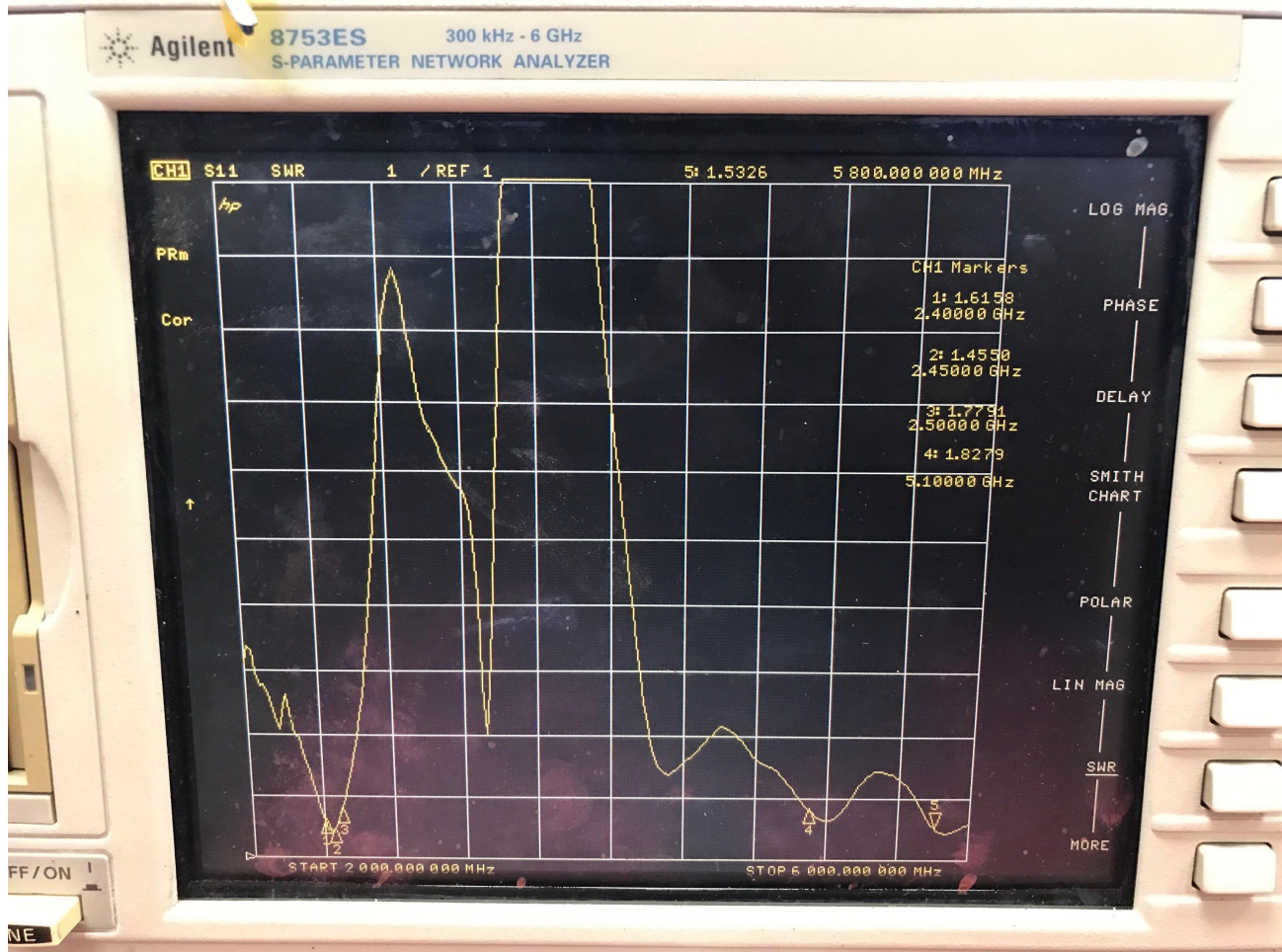
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2、Antenna Performance

SWR



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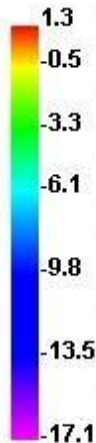
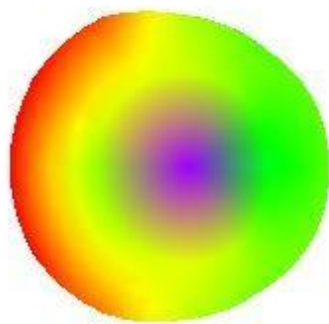
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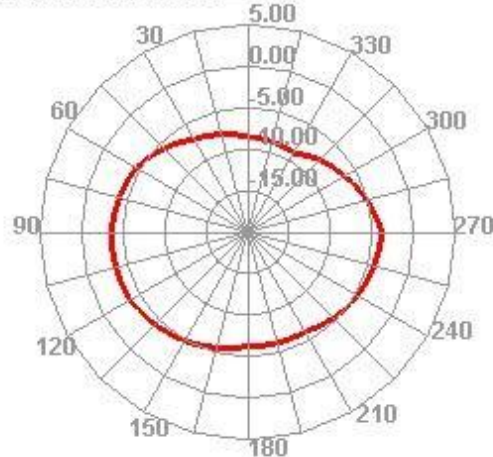
3、Antenna OTA- gain/efficiency test

Passive Test For WIFI										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	49.22	-3.08	1.3	-0.85	33.132	16.091	1.3	-17.14	48.09	47.94
2410	49.19	-3.08	1.23	-0.92	33.264	15.926	1.23	-16.88	48.07	47.87
2420	48.97	-3.1	1.12	-1.03	33.097	15.873	1.12	-16.27	48.18	48
2430	48	-3.19	1	-1.15	32.445	15.554	1	-15.74	48.17	47.99
2440	49.81	-3.03	1.21	-0.94	33.883	15.924	1.21	-15.97	48.33	48.11
2450	51.97	-2.84	1.44	-0.71	35.717	16.249	1.44	-16.43	48.44	48.14
2460	51.39	-2.89	1.4	-0.75	35.752	15.64	1.4	-17.57	48.41	48.06
2470	51.84	-2.85	1.43	-0.72	36.544	15.292	1.43	-17.85	48.49	48.11
2480	52.99	-2.76	1.48	-0.67	37.586	15.4	1.48	-17.28	48.63	48.18
2490	53.53	-2.71	1.45	-0.7	38.058	15.476	1.45	-16.92	48.76	48.29
2500	50.61	-2.96	1.1	-1.05	35.976	14.631	1.1	-17.94	48.69	48.16

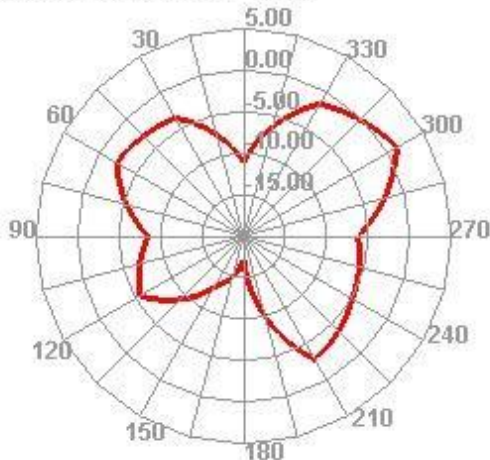
2400.000MHz



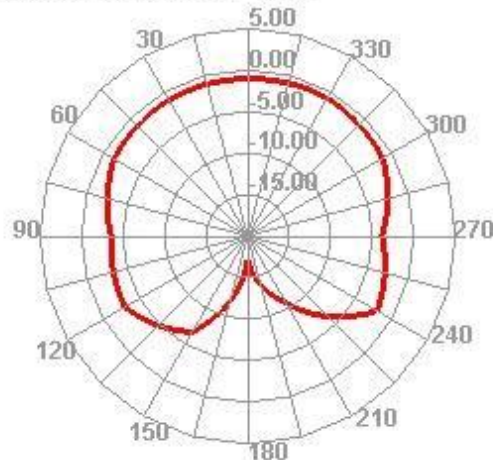
2400.000MHz H



2400.000MHz E1



2400.000MHz E2



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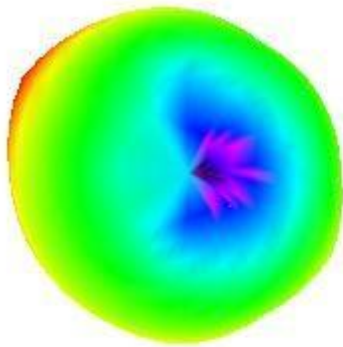
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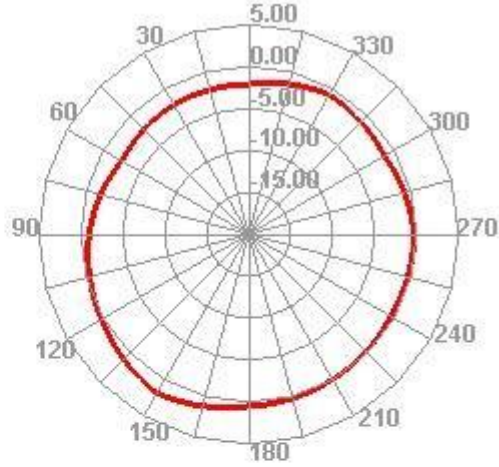
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Passive Test For WIFI5G										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5100	51.31	-2.9	1.88	-0.27	22.733	28.581	1.88	-18.89	57.95	57.06
5200	53.53	-3.61	1.56	-0.59	20.493	23.034	1.56	-18.62	57.55	56.83
5300	48.73	-4.12	1.15	-2	17.671	21.06	1.15	-16.29	57.16	56.32
5400	48.54	-3.14	1.77	-1.38	23.541	24.996	1.77	-14.36	58.32	57.48
5500	54.59	-3.13	2.2	-0.95	25.558	23.028	2.2	-17.86	58.91	57.66
5600	52	-2.84	1.9	-0.25	27.787	24.214	1.9	-17.08	59.51	58.82
5700	63.68	-2.7	2.25	0.1	30.373	23.306	2.25	-19.7	60.54	59.93
5800	65.41	-2.41	1.87	-0.28	33.923	23.488	1.87	-14.83	61.14	60.57

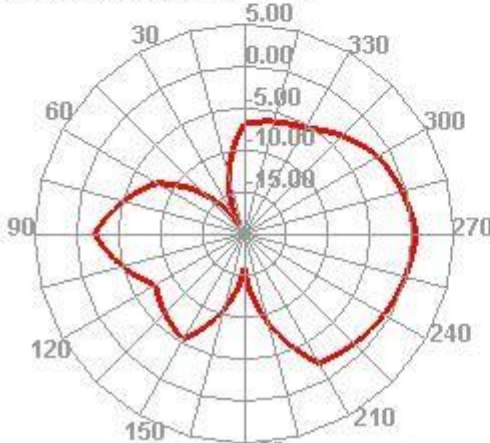
5100.000MHz



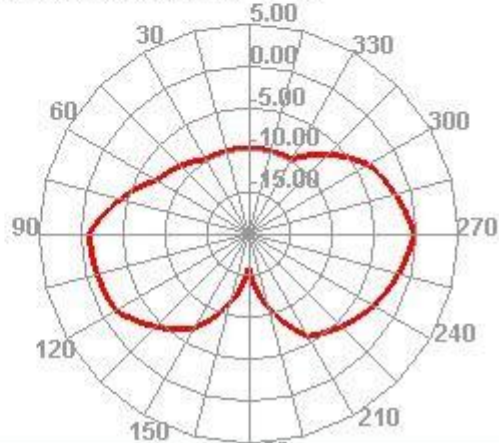
5100.000MHz H



5100.000MHz E1



5100.000MHz E2



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Test Result	Wifi 2G TRP			Test Result	Wifi 2G TIS
	1	6	11		
Frequency (MHz)	2412	2437	2462	Frequency (MHz)	2462
Txp Ave (dBm)	15.24	13.08	11.95	Sens Ave (dBm)	-75.82
NHPRP (dBm)	NULL	NULL	NULL	NHPIS (dBm)	NULL
MAX (dBm)	17.51	15.46	14.41	RSSIAve	12.4
EIRP peak	17.51	15.46	14.41	MaxPosRSSI	14.71
Min (dBm)	6.33	4.16	2.71	MaxPosSens	-78.13
Attenuation Horizontal	14.38	14.18	15.19	MAX (dBm)	14.86
Attenuation Vertical	14.28	14.09	14.82	EIS peak	14.86
				Min (dBm)	3.17
				Attenuation Horizontal	15.63
				Attenuation Vertical	15.32

4、Antenna OTA test data

Test Result	Wifi 5G TRP			Test Result	Wifi 5G TIS
	36	64	161		
Frequency (MHz)	5180	5320	5805	Frequency (MHz)	5320
Txp Ave (dBm)	14.21	14.2	13.6	Sens Ave (dBm)	-72.04
NHPRP (dBm)	NULL	NULL	NULL	NHPIS (dBm)	NULL
MAX (dBm)	16.42	16.83	16.13	RSSIAve	14.48
EIRP peak	16.42	16.83	16.13	MaxPosRSSI	17.64
Min (dBm)	6.18	6.71	6.01	MaxPosSens	-75.2
Attenuation Horizontal	22.86	23.43	24.12	MAX (dBm)	18.54
Attenuation Vertical	22.58	22.88	23.29	EIS peak	18.54
				Min (dBm)	7.26
				Attenuation Horizontal	23.32
				Attenuation Vertical	22.9

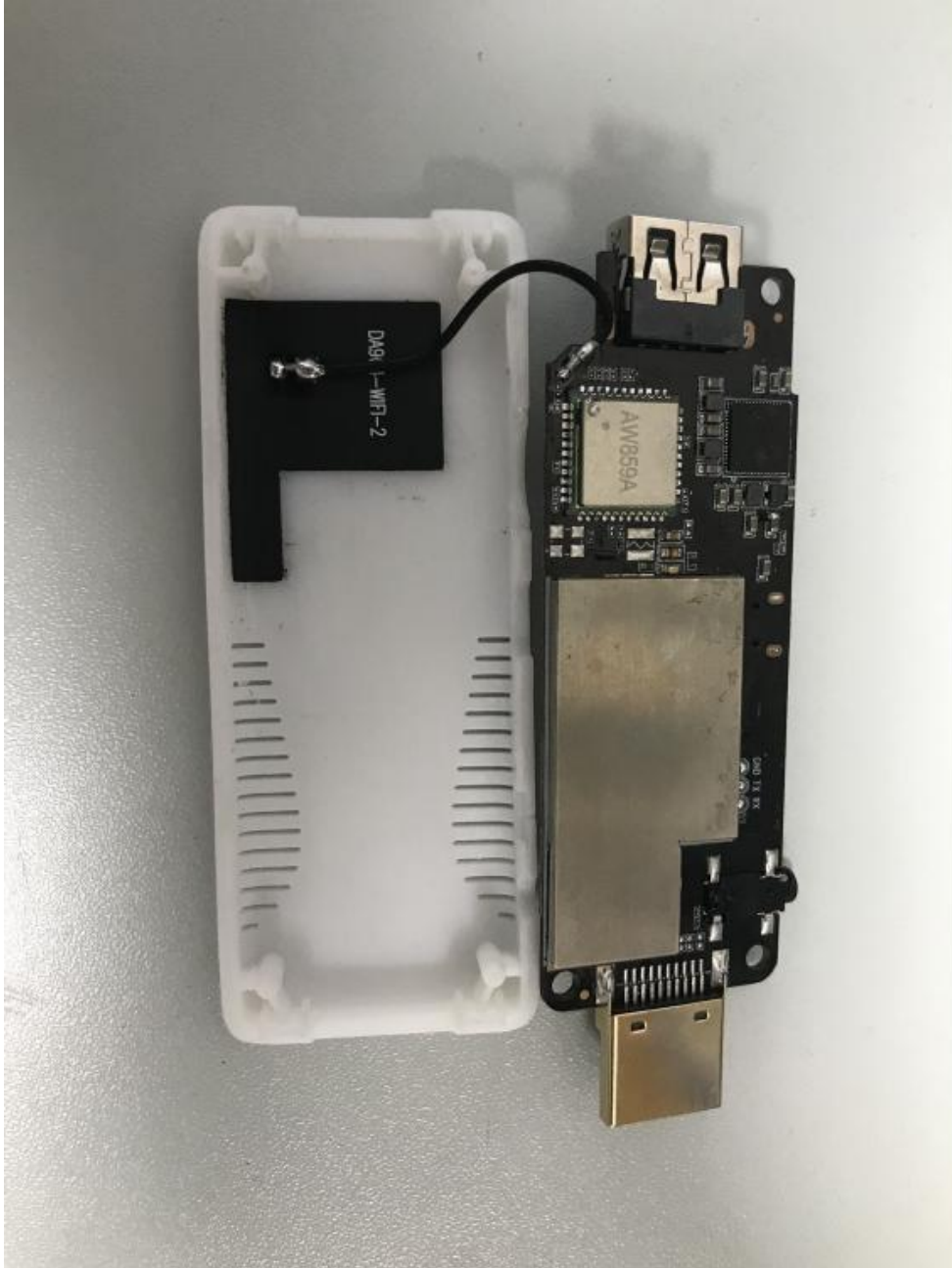
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- **5、 Antenna assembly drawing**



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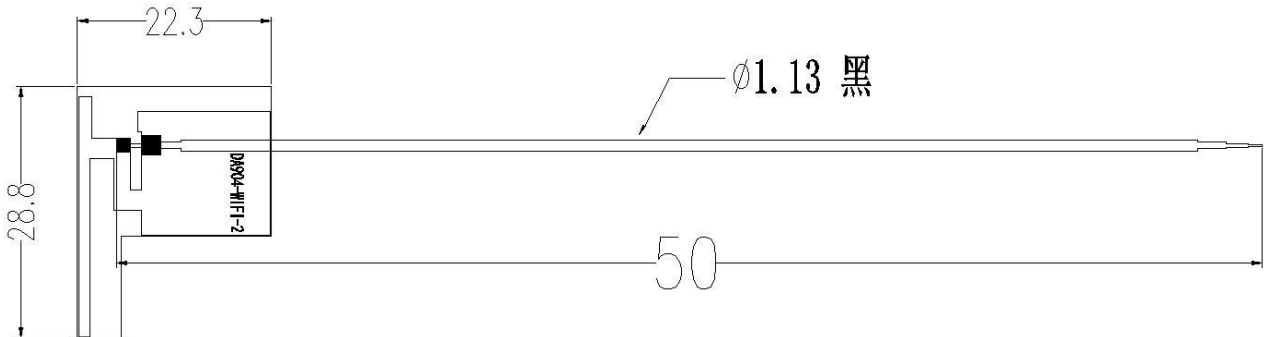
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6、Antenna structure diagram

SIZE:UNIT (MM)



Electrical Technical Parameters

Electrical Specifications	
Frequency Range	2400~2500Hz
VSWR	≤ 2.0
Input Impedance	50 Ω
Gain	1.48 DBI
Radiation direction	omnidirectional
Mechanical Specifications	
Working Temperature	-40 $^{\circ}$ C~+85 $^{\circ}$ C
Working Humidity	20~80%