



深圳星源创科技有限公司

Shen Zhen Xing Yuan Chuang Technology Co., Ltd

规格承认书
Approval Sheet

客户名称 Customer	昱科	日期 Data	2024/06/06
产品名称 Product	WiFi主天线	客户机型 Models	E238
料号 P/N	F667E-14RB-175	客户料号 Customer P/N	31TX00E23817500
规格描述 Specifications	黑色FPC；RF0.81四代端子黑色同轴线；L=175mm		

供应商承认签印 Vender Approved By	客户承认签印 Customer Approved By
	
Checked By:	Checked By:
Audit By:	Audit By:
Approval By:	Approval By:

文件修订履历表

版本 Version	修订内容 Revise The Content	修订人 Revused	核准 Approval	修订日期 Date	备注 Note

地址：深圳市宝安区福永镇福海街道塘尾股份商务大厦1506

Address:1506, Tangwei Business Building, Fuhai Street, Fuyong Town, Baoan District, Shenzhen

Tel: 0755-82103639 QQ: 487580356 Email: Stephdeng_Vis@126.com



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Specification

1.1 Electrical Properties

Characteristics	Specifications
Working Band	2.4GWiFi; 5GWiFi
Antenna From	PIFA
Impedance	50 Ω
Polarization	Linear
Peak Effi	46%@2.4G; 51%@5G
Peak Gain	1.7dBi@2.4G; 4.1dBi@5G

1.2 Physical Properties

Characteristics	Specifications
Operating Temp	-10°C~+60°C
Storage Temp	-10°C~+70°C
Humidity	10~95%RH

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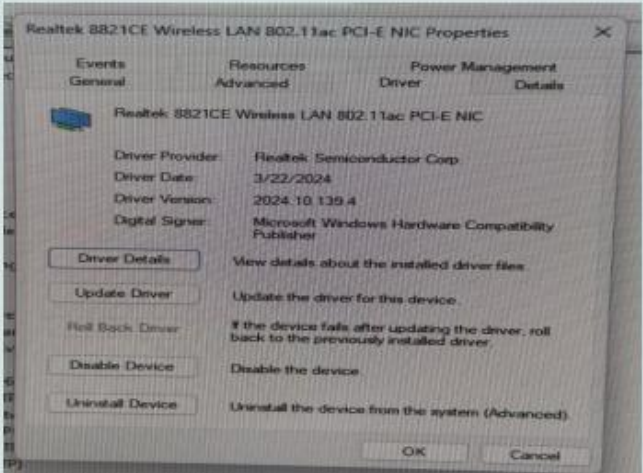
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ANTENNA Shen Zhen Xing Yuan Chuang Technology Co., Ltd

WiFi Ant Test Information

Frequency	2.4G (2402~2483)Mhz	5G (5150~5850)Mhz
Module information		
Driver version information		

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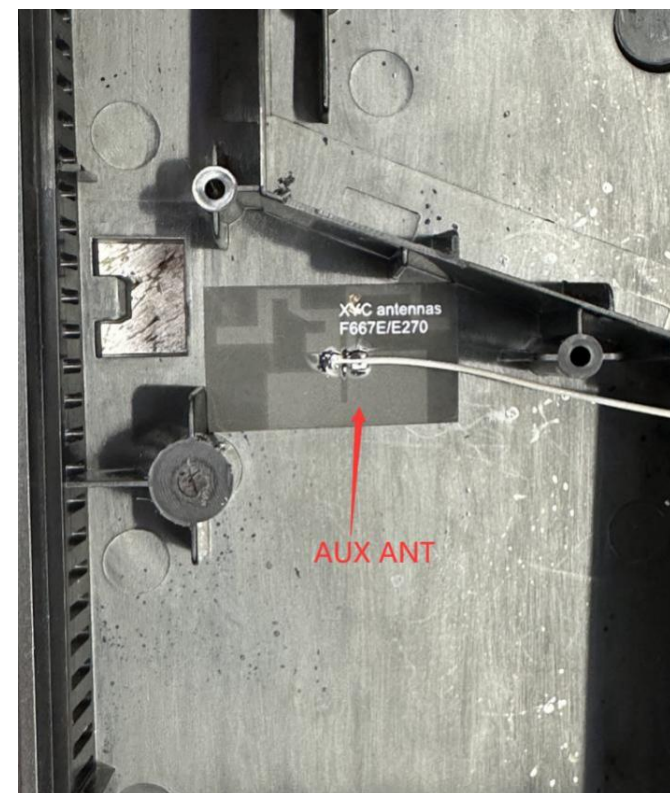
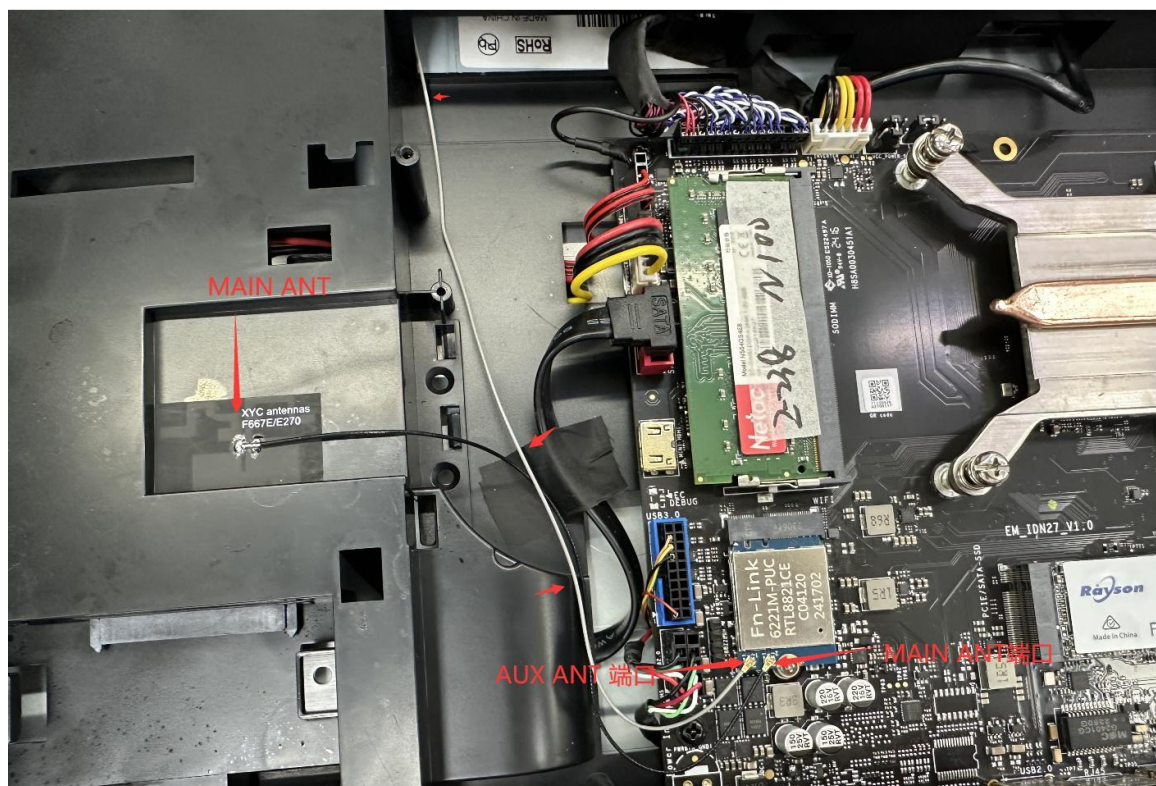
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Antenna Placement



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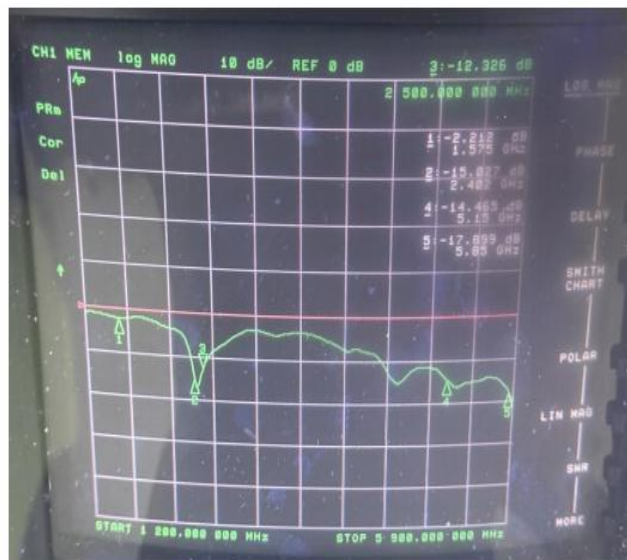
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Test Data

S11 Parameter-VSWR



Frequency(MHZ)	2400	2500	5150	5850
VSWR	1.43	1.64	1.46	1.29
Return Loss(DB)	-15.02	-12.32	-14.46	-17.89

Efficiency Table(2.4G)

Passive Test For WIFI2.4

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)
2400	36.23	-4.41	0.54	-1.61	23.512	12.715	0.54	-29.62
2410	36.33	-4.4	0.74	-1.41	23.719	12.606	0.74	-26.23
2420	39.11	-4.08	1.09	-1.06	25.785	13.327	1.09	-24.18
2430	39.46	-4.04	1.26	-0.89	26.263	13.193	1.26	-23.51
2440	40.46	-3.93	1.35	-0.8	27.009	13.454	1.35	-23.17
2450	41.97	-3.77	1.6	-0.55	28.123	13.848	1.6	-24.34
2460	43.98	-3.57	1.73	-0.42	29.478	14.501	1.73	-25.97
2470	45.67	-3.4	1.64	-0.51	30.612	15.053	1.64	-26.89
2480	46.57	-3.32	1.54	-0.61	31.151	15.422	1.54	-25.53
2490	46.15	-3.36	1.26	-0.89	30.709	15.439	1.26	-23.01
2500	46.28	-3.35	1.28	-0.87	30.856	15.421	1.28	-21.06

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Efficiency Table(5G)

Passive Test For WIFI5G

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)
5150	31.93	-5.03	2.03	-0.12	26.563	4.863	2.03	-23.81
5170	35.28	-4.52	2.51	0.36	29.952	5.329	2.51	-24.44
5190	34.24	-4.65	2.45	0.3	29.034	5.209	2.45	-22.09
5210	40.43	-3.93	3.25	1.1	34.27	6.159	3.25	-19.91
5230	36.91	-4.33	2.73	0.58	31.495	5.416	2.73	-22.07
5250	42.9	-3.68	3.36	1.21	36.751	6.152	3.36	-19.91
5270	41.84	-3.78	3.31	1.16	35.9	5.944	3.31	-22.98
5290	46.83	-3.3	3.84	1.69	40.1	6.725	3.84	-21.39
5310	41.59	-3.81	3.36	1.21	35.759	5.833	3.36	-21.51
5330	43.81	-3.58	3.59	1.44	37.847	5.966	3.59	-23.88
5350	43.38	-3.63	3.49	1.34	37.49	5.895	3.49	-22.62
5370	43.85	-3.58	3.58	1.43	37.864	5.989	3.58	-20.68
5390	39.63	-4.02	3.12	0.97	34.201	5.425	3.12	-22.98
5410	49	-3.1	3.96	1.81	42.28	6.717	3.96	-23.51
5430	42.78	-3.69	3.25	1.1	36.854	5.929	3.25	-21.64
5450	46.92	-3.29	3.55	1.4	40.345	6.579	3.55	-21.86
5470	43.31	-3.63	3.17	1.02	37.258	6.05	3.17	-23.71
5490	43.43	-3.62	3.4	1.25	37.374	6.056	3.4	-24.45
5510	46.19	-3.35	3.58	1.43	39.597	6.593	3.58	-21.96
5530	46.31	-3.34	3.6	1.45	39.584	6.727	3.6	-21.69
5550	51.37	-2.89	4.1	1.95	43.904	7.466	4.1	-21.12
5570	44.95	-3.47	3.59	1.44	38.381	6.566	3.59	-21.59
5590	48.62	-3.13	3.79	1.64	41.426	7.196	3.79	-21.5
5610	42.63	-3.7	2.93	0.78	36.291	6.342	2.93	-23.63
5630	49.06	-3.09	3.63	1.48	41.806	7.249	3.63	-24.53
5650	44.08	-3.56	3.27	1.12	37.539	6.539	3.27	-23.02
5670	47.37	-3.24	3.71	1.56	40.354	7.017	3.71	-21.47
5690	45.33	-3.44	3.25	1.1	38.556	6.777	3.25	-21.58
5710	43.95	-3.57	3.13	0.98	37.441	6.512	3.13	-22.77
5730	49.39	-3.06	3.73	1.58	42.054	7.338	3.73	-21.97
5750	43.27	-3.64	3.2	1.05	36.854	6.417	3.2	-20.71
5770	48.78	-3.12	3.52	1.37	41.393	7.389	3.52	-17.48
5790	43.87	-3.58	2.96	0.81	37.125	6.75	2.96	-19.16
5810	47.8	-3.21	3.23	1.08	40.431	7.367	3.23	-17.75
5830	47.22	-3.26	3.34	1.19	40.043	7.178	3.34	-20.71
5850	51.92	-2.85	3.7	1.55	43.83	8.088	3.7	-19.94

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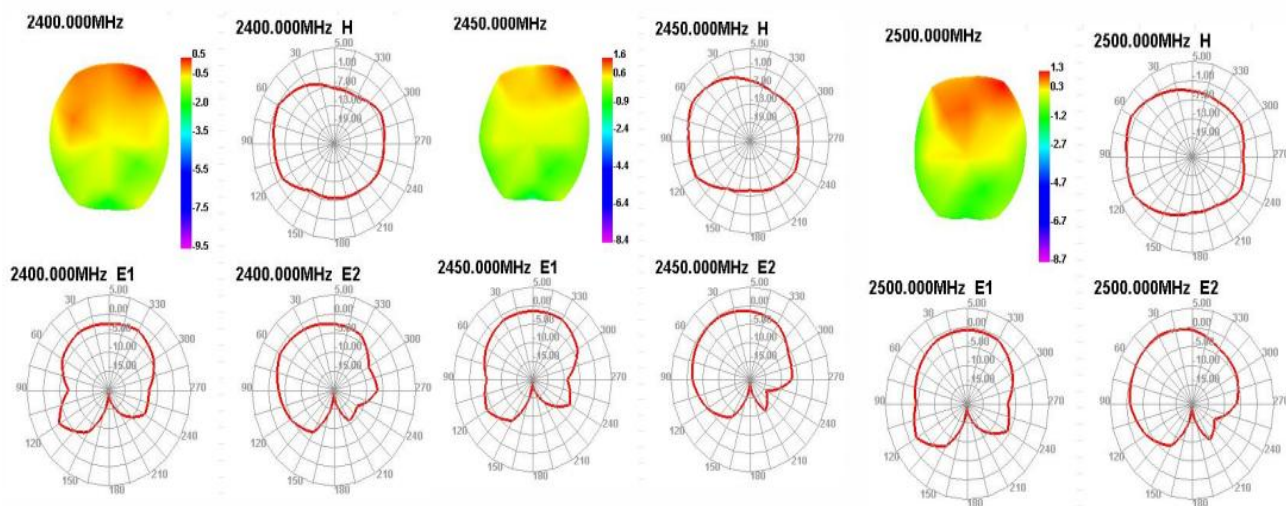
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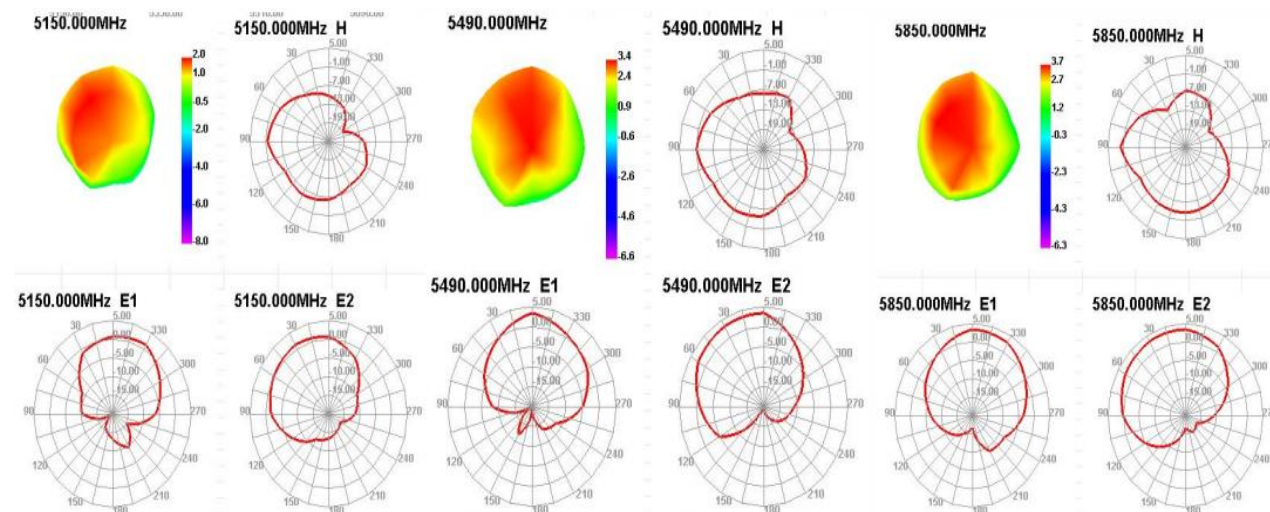
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Radiation Pattern(2.4G)



Radiation Pattern(5G)



BT Test

测试环境：开放空间(通道)

测试工具：蓝牙音响

测试距离：10/m

结果：播放音乐流畅，无杂音。

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Throughput Test(2.4G)

上行	88.9M			下行	122M		
图片	[388]	17.0-18.0 sec	10.9 MBytes 91.8 Mbits/sec	图片	[272]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	17.0-18.0 sec	16.5 MBytes 139 Mbits/sec
	[388]	18.0-19.0 sec	10.6 MBytes 89.1 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	18.0-19.0 sec	16.4 MBytes 137 Mbits/sec
	[388]	19.0-20.0 sec	10.6 MBytes 89.1 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	19.0-20.0 sec	15.5 MBytes 130 Mbits/sec
	[388]	20.0-21.0 sec	10.9 MBytes 91.0 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	20.0-21.0 sec	17.6 MBytes 147 Mbits/sec
	[388]	21.0-22.0 sec	11.0 MBytes 92.3 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	21.0-22.0 sec	16.4 MBytes 138 Mbits/sec
	[388]	22.0-23.0 sec	10.7 MBytes 90.1 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	22.0-23.0 sec	16.4 MBytes 138 Mbits/sec
	[388]	23.0-24.0 sec	10.2 MBytes 85.8 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	23.0-24.0 sec	16.0 MBytes 134 Mbits/sec
	[388]	24.0-25.0 sec	10.5 MBytes 88.5 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	24.0-25.0 sec	16.1 MBytes 135 Mbits/sec
	[388]	25.0-26.0 sec	10.0 MBytes 84.0 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	25.0-26.0 sec	15.8 MBytes 133 Mbits/sec
	[388]	26.0-27.0 sec	10.8 MBytes 90.6 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	26.0-27.0 sec	14.3 MBytes 120 Mbits/sec
	[388]	27.0-28.0 sec	11.2 MBytes 93.7 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	27.0-28.0 sec	13.3 MBytes 112 Mbits/sec
	[388]	28.0-29.0 sec	10.8 MBytes 90.2 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	28.0-29.0 sec	12.6 MBytes 106 Mbits/sec
	[388]	29.0-30.0 sec	11.1 MBytes 93.0 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	29.0-30.0 sec	14.2 MBytes 119 Mbits/sec
	[388]	0.0-30.0 sec	310 MBytes 88.9 Mbits/sec		[ID]	Interval	Transfer Bandwidth
	[ID]	Interval	Transfer Bandwidth		[272]	0.0-30.0 sec	439 MBytes 122 Mbits/sec

Throughput Test(5G)

上行	242M			下行	286M		
图片	[ID]	Interval	Transfer Bandwidth	图片	[272]	Interval	Transfer Bandwidth
	[400]	17.0-18.0 sec	28.9 MBytes 242 Mbits/sec		[272]	17.0-18.0 sec	35.2 MBytes 296 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	18.0-19.0 sec	29.5 MBytes 247 Mbits/sec		[272]	18.0-19.0 sec	28.7 MBytes 241 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	19.0-20.0 sec	28.6 MBytes 240 Mbits/sec		[272]	19.0-20.0 sec	35.1 MBytes 295 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	20.0-21.0 sec	28.3 MBytes 237 Mbits/sec		[272]	20.0-21.0 sec	35.7 MBytes 299 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	21.0-22.0 sec	29.1 MBytes 244 Mbits/sec		[272]	21.0-22.0 sec	34.4 MBytes 289 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	22.0-23.0 sec	29.4 MBytes 246 Mbits/sec		[272]	22.0-23.0 sec	35.2 MBytes 295 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	23.0-24.0 sec	28.9 MBytes 242 Mbits/sec		[272]	23.0-24.0 sec	34.4 MBytes 289 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	24.0-25.0 sec	29.4 MBytes 246 Mbits/sec		[272]	24.0-25.0 sec	33.1 MBytes 278 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	25.0-26.0 sec	28.9 MBytes 243 Mbits/sec		[272]	25.0-26.0 sec	35.7 MBytes 300 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	26.0-27.0 sec	29.6 MBytes 248 Mbits/sec		[272]	26.0-27.0 sec	33.8 MBytes 283 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	27.0-28.0 sec	28.6 MBytes 240 Mbits/sec		[272]	27.0-28.0 sec	36.0 MBytes 302 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	28.0-29.0 sec	29.5 MBytes 247 Mbits/sec		[272]	28.0-29.0 sec	36.0 MBytes 302 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	29.0-30.0 sec	29.4 MBytes 246 Mbits/sec		[272]	29.0-30.0 sec	34.4 MBytes 288 Mbits/sec
	[ID]	Interval	Transfer Bandwidth		[ID]	Interval	Transfer Bandwidth
	[400]	0.0-30.0 sec	866 MBytes 242 Mbits/sec		[272]	0.0-30.0 sec	1024 MBytes 286 Mbits/sec

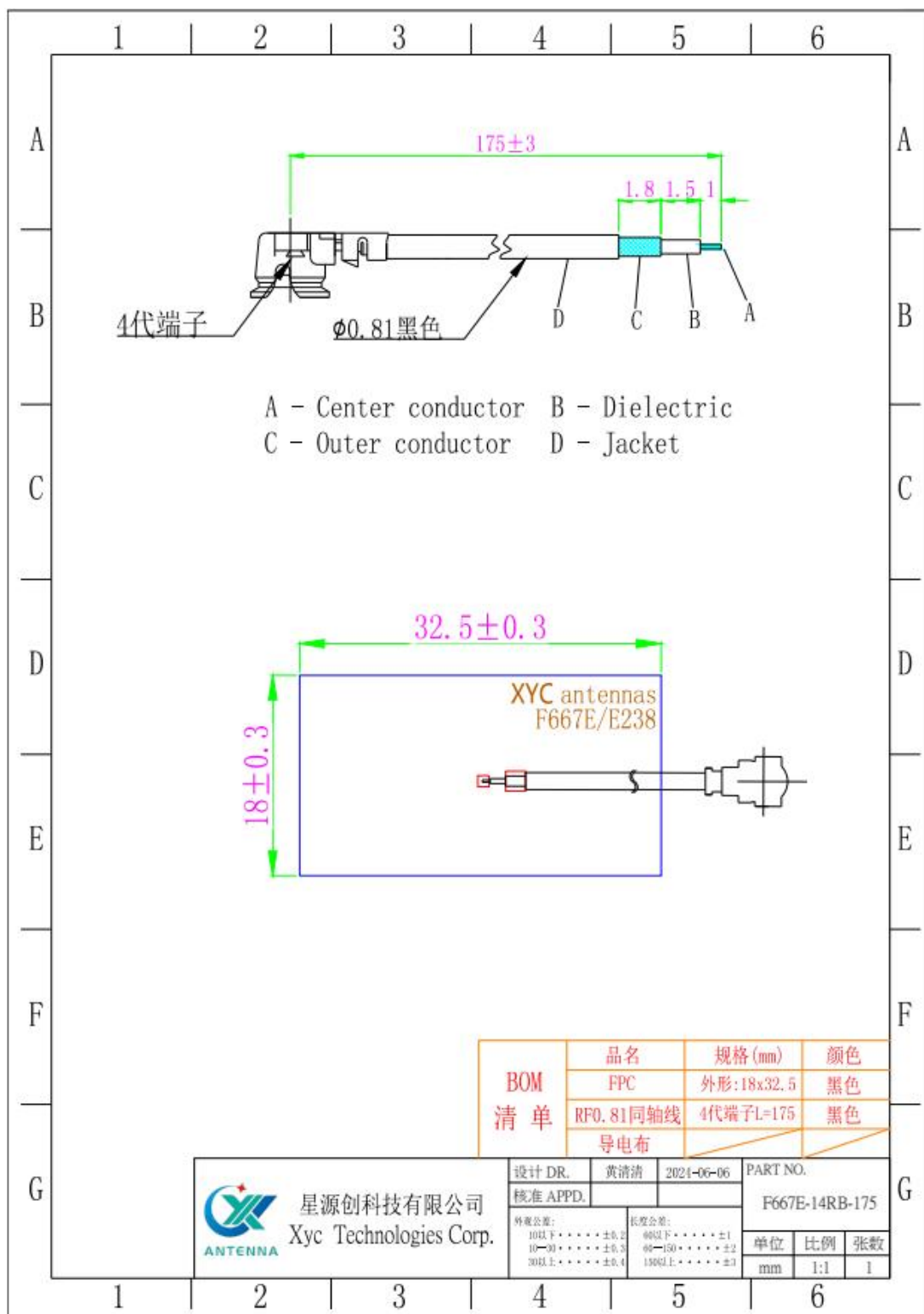
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