



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	索沃思/Sauworth	日期 Data	2023/12/04
产品名称 Product	WiFi/BT ANT	客户机型 Models	B40N
料号 P/N	Main:F667Q-14LB-185 Aux:F667R-14LG-140	客户料号 Customer P/N	
规格描述 Specifications	FPC; Main: RF0.81, L=185mm; Aux: RF0.81, L=140mm		

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 /Document revision Resume

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/BT
Antenna From	PIFA
Impedance	50 Ω
Polarization	Linear
Peak Effi	50%@2.4G; 53%@5G
Peak Gain	2.64dBi@2.4GWIFI 4.63 dBi@5G 1.28 dBi@BT

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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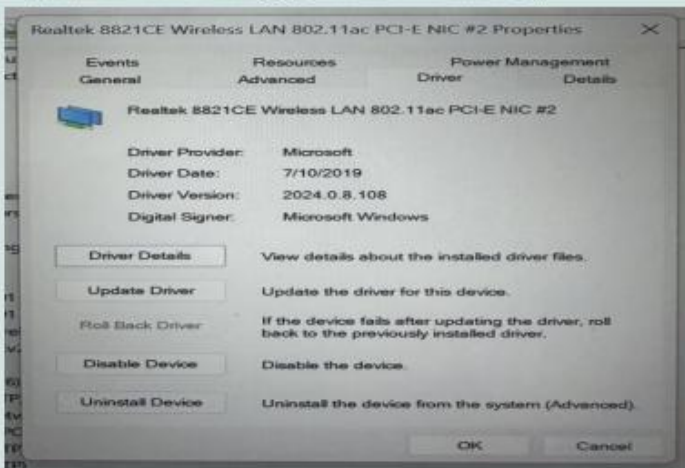
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WiFi Ant Test Information

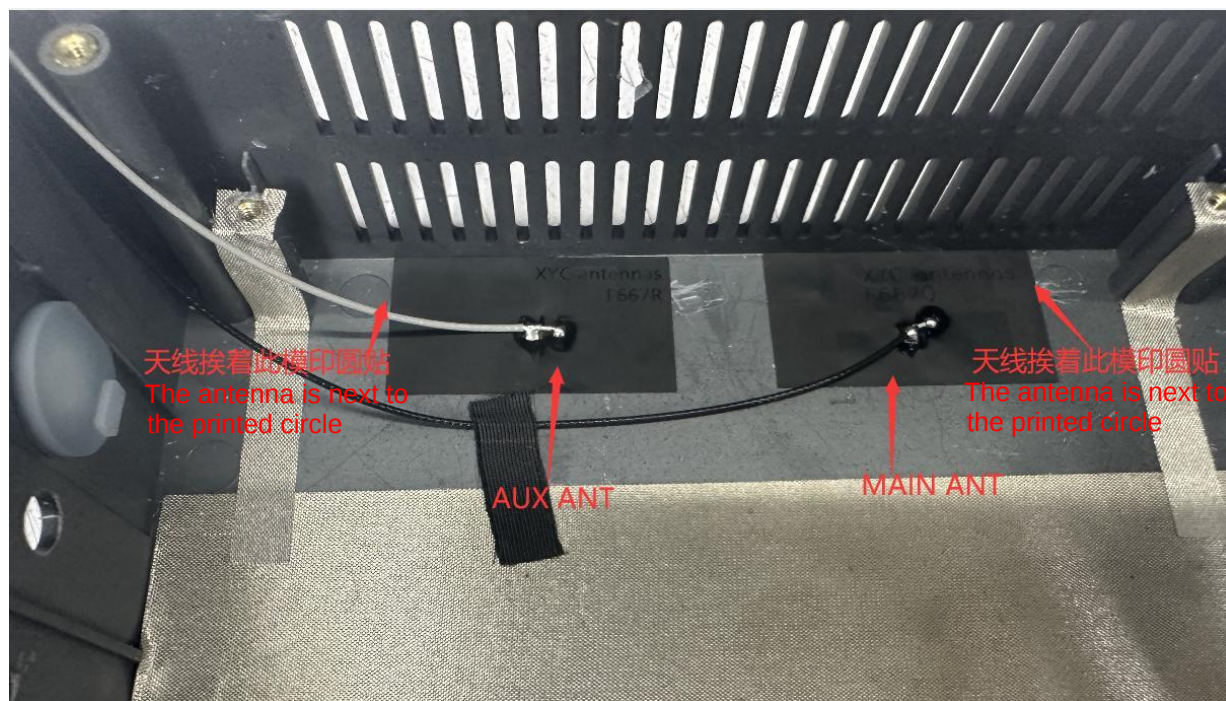
Frequency	2. 4G(2402~2483) Mhz	5G (5150~5850) Mhz
Module information		
Driver version information		

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Antenna Placement



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Efficiency Table (2.4G Main)

Passive Test For WIFI2.4						
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)
2400	47.7	-3.21	1.11	-1.04	30.368	17.334
2410	46.42	-3.33	0.89	-1.26	28.909	17.514
2420	49.45	-3.06	1.1	-1.05	30.181	19.27
2430	49.71	-3.04	1.1	-1.05	29.814	19.894
2440	50.25	-2.99	1.28	-0.87	29.58	20.673
2450	49.75	-3.03	1.03	-1.12	28.774	20.979
2460	48.18	-3.17	0.65	-1.5	27.351	20.828
2470	48.68	-3.13	0.71	-1.44	27.288	21.392
2480	50.93	-2.93	0.87	-1.28	27.831	23.098
2490	50.31	-2.98	0.94	-1.21	27.017	23.288
2500	43.22	-3.64	0.32	-1.83	22.918	20.306

Efficiency Table (2.4G Aux)

Passive Test For WIFI2.4								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)
2400	42.77	-3.69	2.08	-0.07	16.395	26.379	2.08	-13.88
2410	43.42	-3.62	2.18	0.03	17.358	26.06	2.18	-13.58
2420	43.3	-3.63	2.24	0.09	17.666	25.637	2.24	-14.35
2430	45.25	-3.44	2.36	0.21	18.821	26.427	2.36	-15.51
2440	49.61	-3.04	2.64	0.49	20.926	28.683	2.64	-16.62
2450	50.02	-3.01	2.61	0.46	21.462	28.563	2.61	-19.02
2460	48.35	-3.16	2.45	0.3	21.001	27.35	2.45	-20.04
2470	49.11	-3.09	2.46	0.31	21.681	27.429	2.46	-19.71
2480	49.82	-3.03	2.58	0.43	22.451	27.368	2.58	-19.41
2490	48.73	-3.12	2.46	0.31	22.395	26.334	2.46	-22.18
2500	47.47	-3.24	2.47	0.32	22.377	25.097	2.47	-24.1



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Efficiency Table (5G Main)

Passive Test For WIFI5G								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)
5150	35.39	-4.51	1.18	-0.97	18.296	17.098	1.18	-17.19
5170	34.99	-4.56	1.03	-1.12	18.193	16.794	1.03	-17.6
5190	36.71	-4.35	1.43	-0.72	19.437	17.27	1.43	-16.11
5210	39.77	-4	2.1	-0.05	21.639	18.136	2.1	-16.28
5230	37.99	-4.2	2.29	0.14	21.175	16.816	2.29	-17.34
5250	41.69	-3.8	2.5	0.35	23.492	18.2	2.5	-16.89
5270	41.68	-3.8	2.23	0.08	23.785	17.898	2.23	-15.96
5290	44.99	-3.47	2.75	0.6	26.297	18.696	2.75	-15.87
5310	40.72	-3.9	2.47	0.32	24.334	16.382	2.47	-15.95
5330	42.94	-3.67	2.71	0.56	25.786	17.151	2.71	-16.43
5350	44.36	-3.53	2.74	0.59	26.511	17.85	2.74	-15.67
5370	45.79	-3.39	2.92	0.77	27.45	18.337	2.92	-16.06
5390	39.98	-3.98	2.53	0.38	24.314	15.663	2.53	-18.17
5410	49.26	-3.08	3.6	1.45	30.359	18.901	3.6	-16.37
5430	41.75	-3.79	2.69	0.54	25.826	15.922	2.69	-15.82
5450	47.63	-3.22	3.07	0.92	29.39	18.241	3.07	-17.52
5470	43.54	-3.61	2.8	0.65	27.1	16.437	2.8	-17.95
5490	46.37	-3.34	3.17	1.02	29.011	17.363	3.17	-17.71
5510	46.74	-3.3	3.3	1.15	29.491	17.253	3.3	-17.08
5530	49.55	-3.05	3.48	1.33	30.673	18.881	3.48	-17.03
5550	51.96	-2.84	3.82	1.67	31.863	20.098	3.82	-15.75
5570	49.08	-3.09	3.76	1.61	29.935	19.149	3.76	-14.09
5590	52.24	-2.82	4.19	2.04	32.05	20.186	4.19	-14.36
5610	49.26	-3.08	3.72	1.57	29.721	19.534	3.72	-15.16
5630	53.32	-2.73	4.12	1.97	31.615	21.701	4.12	-15.12
5650	50.58	-2.96	4.18	2.03	29.608	20.969	4.18	-14.98
5670	50.9	-2.93	4.58	2.43	30.294	20.609	4.58	-15.59
5690	50.88	-2.93	4.63	2.48	30.374	20.506	4.63	-16.29
5710	47.17	-3.26	4.13	1.98	27.775	19.397	4.13	-16.1
5730	51.91	-2.85	4.58	2.43	30.223	21.691	4.58	-14.68
5750	46.36	-3.34	4.05	1.9	27.137	19.223	4.05	-14.4
5770	46.79	-3.3	3.86	1.71	27.616	19.17	3.86	-14.43
5790	41.55	-3.81	2.74	0.59	24.144	17.408	2.74	-14.96
5810	42.07	-3.76	2.49	0.34	24.172	17.895	2.49	-16.55
5830	41.06	-3.87	2.15	0	23.509	17.551	2.15	-19.08
5850	41.03	-3.87	1.93	-0.22	23.465	17.569	1.93	-20.81

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Efficiency Table (5G Aux)

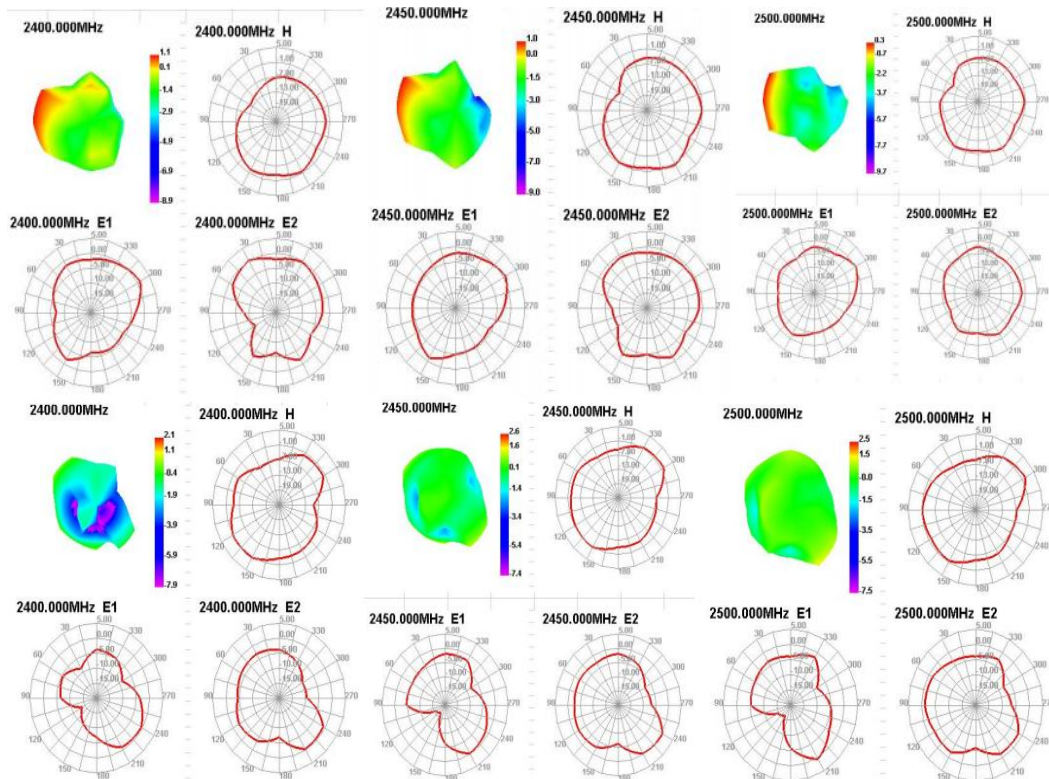
Passive Test For WIFI5G								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)
5150	28.97	-5.38	0.97	-1.18	14.989	13.98	0.97	-16.2
5170	31.1	-5.07	1.16	-0.99	16.186	14.914	1.16	-14.53
5190	31.71	-4.99	1.62	-0.53	16.798	14.913	1.62	-16.07
5210	34.49	-4.62	2.09	-0.06	18.418	16.074	2.09	-15.61
5230	34.56	-4.61	2.11	-0.04	18.512	16.046	2.11	-16.97
5250	35.35	-4.52	2.27	0.12	18.944	16.409	2.27	-17.16
5270	38.1	-4.19	2.46	0.31	20.494	17.607	2.46	-17.81
5290	34.56	-4.61	1.99	-0.16	18.632	15.93	1.99	-19.58
5310	34.36	-4.64	1.92	-0.23	18.546	15.812	1.92	-20.87
5330	33.34	-4.77	1.69	-0.46	17.852	15.485	1.69	-18.12
5350	37.09	-4.31	1.97	-0.18	19.746	17.345	1.97	-17.73
5370	33.7	-4.72	1.48	-0.67	17.955	15.747	1.48	-19.61
5390	32.1	-4.93	1.39	-0.76	17.067	15.035	1.39	-23.5
5410	35.67	-4.48	1.7	-0.45	18.715	16.952	1.7	-27.83
5430	38.78	-4.11	1.78	-0.37	19.911	18.87	1.78	-24.05
5450	39.8	-4	1.69	-0.46	20.159	19.644	1.69	-21.72
5470	41.73	-3.8	1.75	-0.4	20.84	20.886	1.75	-21.38
5490	40.42	-3.93	1.32	-0.83	19.796	20.62	1.32	-18.82
5510	45.33	-3.44	1.52	-0.63	21.74	23.592	1.52	-17.13
5530	44.75	-3.49	1.34	-0.81	21.101	23.646	1.34	-16.81
5550	49.63	-3.04	1.66	-0.49	23.075	26.56	1.66	-17.94
5570	42.31	-3.74	1.13	-1.02	19.493	22.815	1.13	-23.4
5590	47.75	-3.21	1.69	-0.46	21.705	26.046	1.69	-19.84
5610	39.85	-4	1.03	-1.12	18.126	21.723	1.03	-19.38
5630	49.71	-3.04	1.92	-0.23	22.632	27.074	1.92	-17.98
5650	36.96	-4.32	0.48	-1.67	17.055	19.909	0.48	-20.5
5670	46.58	-3.32	1.49	-0.66	21.511	25.072	1.49	-17.87
5690	36.52	-4.38	0.66	-1.49	16.645	19.871	0.66	-18.17
5710	43.12	-3.65	1.58	-0.57	19.226	23.891	1.58	-16.51
5730	42.14	-3.75	1.33	-0.82	18.734	23.407	1.33	-16.35
5750	40.9	-3.88	1.22	-0.93	18.404	22.501	1.22	-18.65
5770	42.45	-3.72	1.53	-0.62	19.126	23.325	1.53	-18.33
5790	40.48	-3.93	1.51	-0.64	18.409	22.069	1.51	-16.24
5810	42.79	-3.69	1.86	-0.29	19.629	23.164	1.86	-16.49
5830	43.5	-3.61	2.08	-0.07	20.146	23.356	2.08	-17.53
5850	44.6	-3.51	2.28	0.13	20.462	24.135	2.28	-19.64

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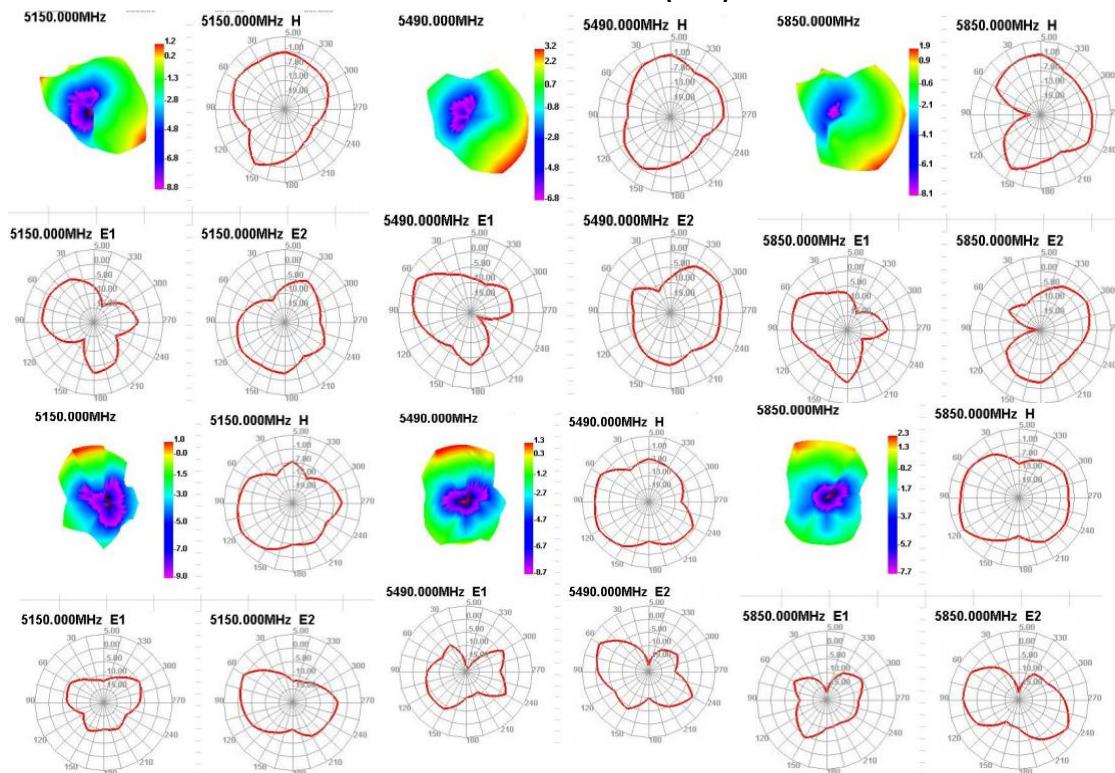
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Radiation Pattern(2.4G)



Radiation Pattern(5G)



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WiFi Active Test Data

802.11b	Frequency	TRP		TIS	
	2412	CH1 11Mbps	15.06	CH1 11Mbps	-78.78
	2437	CH6 11Mbps	14.24	CH6 11Mbps	-79.64
	2467	CH11 11Mbps	13.98	CH11 11Mbps	-76.23
802.11g		TRP		TIS	
	2412	CH1 6Mbps	15.66	CH36 54Mbps	-64.27
	2437	CH6 6Mbps	14.51	CH60 54Mbps	-64.34
	2467	CH11 6Mbps	13.92	CH161 54Mbps	-63.61
802.11a		TRP		TIS	
	5180	CH36 6Mbps	13.59	CH36 54Mbps	-69.36
	5300	CH60 6Mbps	13.29	CH60 54Mbps	-67.52
	5805	CH161 6Mbps	15.29	CH161 54Mbps	-69.5
802.11g/n				TIS	
	2412	CH1 MCS7	14.04	CH1 MCS7	-60.65
	2437	CH6 MCS7	15.54	CH6 MCS7	-59.49
	2467	CH11 MCS7	11.67	CH11 MCS7	-59.68
802.11a/n		TRP		TIS	
	5180	CH36 MCS7	14.2	CH36 MCS7	-63.95
	5300	CH60 MCS7	12.48	CH60 MCS7	-60.27
	5805	CH161 MCS7	14.82	CH161 MCS7	-63.03

BT Test

测试环境：开放空间(通道) Test environment: Open space (channel)

测试工具：蓝牙音响 Test tool: Bluetooth speaker

测试距离：15/m Test distance: 15/m

结果：播放音乐流畅，无杂音。 Results: The music was played smoothly and without noise.

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Throughput Test(2.4G)

	69.3M		104M
[356] 17.0-18.0 sec	8.28 MBytes 68.7 Mbits/sec	[320] 17.0-18.0 sec	12.1 MBytes 102 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 18.0-19.0 sec	8.24 MBytes 69.1 Mbits/sec	[320] 18.0-19.0 sec	12.0 MBytes 101 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 19.0-20.0 sec	8.81 MBytes 73.9 Mbits/sec	[320] 19.0-20.0 sec	11.8 MBytes 98.7 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 20.0-21.0 sec	7.26 MBytes 60.9 Mbits/sec	[320] 20.0-21.0 sec	10.7 MBytes 89.7 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 21.0-22.0 sec	6.41 MBytes 53.8 Mbits/sec	[320] 21.0-22.0 sec	12.4 MBytes 104 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 22.0-23.0 sec	9.33 MBytes 78.2 Mbits/sec	[320] 22.0-23.0 sec	13.2 MBytes 110 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 23.0-24.0 sec	8.69 MBytes 72.9 Mbits/sec	[320] 23.0-24.0 sec	12.9 MBytes 108 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 24.0-25.0 sec	8.93 MBytes 74.9 Mbits/sec	[320] 24.0-25.0 sec	11.9 MBytes 99.7 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 25.0-26.0 sec	8.84 MBytes 74.2 Mbits/sec	[320] 25.0-26.0 sec	11.3 MBytes 94.4 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 26.0-27.0 sec	8.84 MBytes 74.1 Mbits/sec	[320] 26.0-27.0 sec	11.7 MBytes 97.8 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 27.0-28.0 sec	8.68 MBytes 72.8 Mbits/sec	[320] 27.0-28.0 sec	14.4 MBytes 121 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 28.0-29.0 sec	8.62 MBytes 72.5 Mbits/sec	[320] 28.0-29.0 sec	13.2 MBytes 111 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 29.0-30.0 sec	8.36 MBytes 70.1 Mbits/sec	[320] 29.0-30.0 sec	13.1 MBytes 110 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 0.0-30.0 sec	248 MBytes 69.3 Mbits/sec	[320] 0.0-30.0 sec	371 MBytes 104 Mbits/sec

Throughput Test(5G)

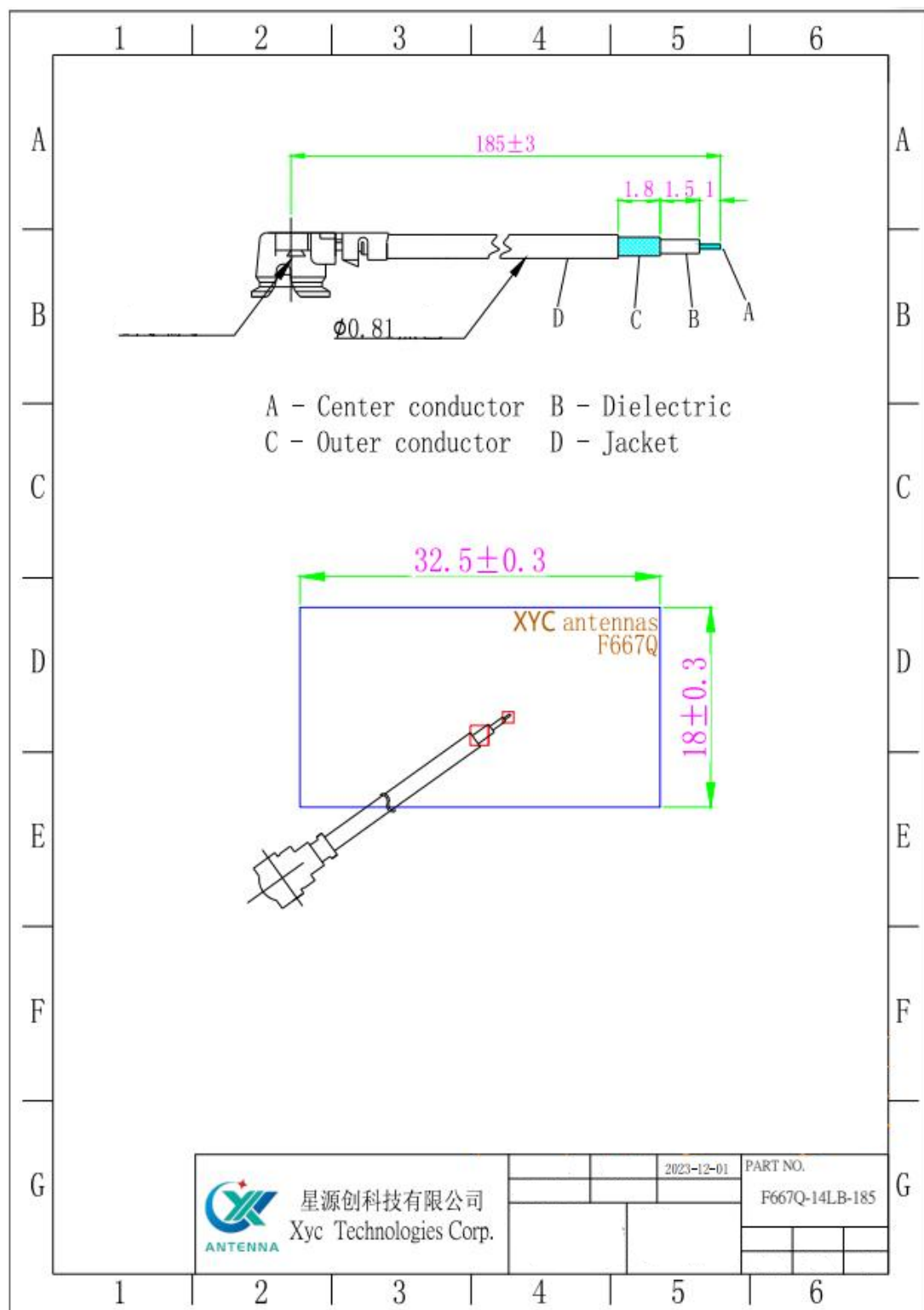
	257M		345M
[356] 19.0-20.0 sec	30.9 MBytes 259 Mbits/sec	[320] 18.0-19.0 sec	41.9 MBytes 351 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 20.0-21.0 sec	31.0 MBytes 260 Mbits/sec	[320] 19.0-20.0 sec	41.9 MBytes 351 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 21.0-22.0 sec	31.2 MBytes 262 Mbits/sec	[320] 20.0-21.0 sec	41.9 MBytes 352 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 22.0-23.0 sec	29.7 MBytes 249 Mbits/sec	[320] 21.0-22.0 sec	41.4 MBytes 348 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 23.0-24.0 sec	30.3 MBytes 254 Mbits/sec	[320] 22.0-23.0 sec	41.5 MBytes 348 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 24.0-25.0 sec	28.7 MBytes 241 Mbits/sec	[320] 23.0-24.0 sec	41.6 MBytes 349 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 25.0-26.0 sec	29.6 MBytes 248 Mbits/sec	[320] 24.0-25.0 sec	42.0 MBytes 352 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 26.0-27.0 sec	30.1 MBytes 253 Mbits/sec	[320] 25.0-26.0 sec	41.9 MBytes 351 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 27.0-28.0 sec	30.7 MBytes 258 Mbits/sec	[320] 26.0-27.0 sec	42.0 MBytes 352 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 28.0-29.0 sec	29.9 MBytes 251 Mbits/sec	[320] 27.0-28.0 sec	41.3 MBytes 347 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 29.0-30.0 sec	30.7 MBytes 258 Mbits/sec	[320] 28.0-29.0 sec	41.7 MBytes 350 Mbits/sec
[ID] Interval	Transfer Bandwidth	[ID] Interval	Transfer Bandwidth
[356] 0.0-30.0 sec	919 MBytes 257 Mbits/sec	[320] 29.0-30.0 sec	41.6 MBytes 349 Mbits/sec
		[ID] Interval	Transfer Bandwidth
		[320] 0.0-30.0 sec	1.21 GBytes 345 Mbits/sec

地址：深圳市宝安区福永镇福海街道塘尾股份商务大厦1506

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Antenna Assembly



地址：深圳市宝安区福永镇福海街道塘尾股份商务大厦1506

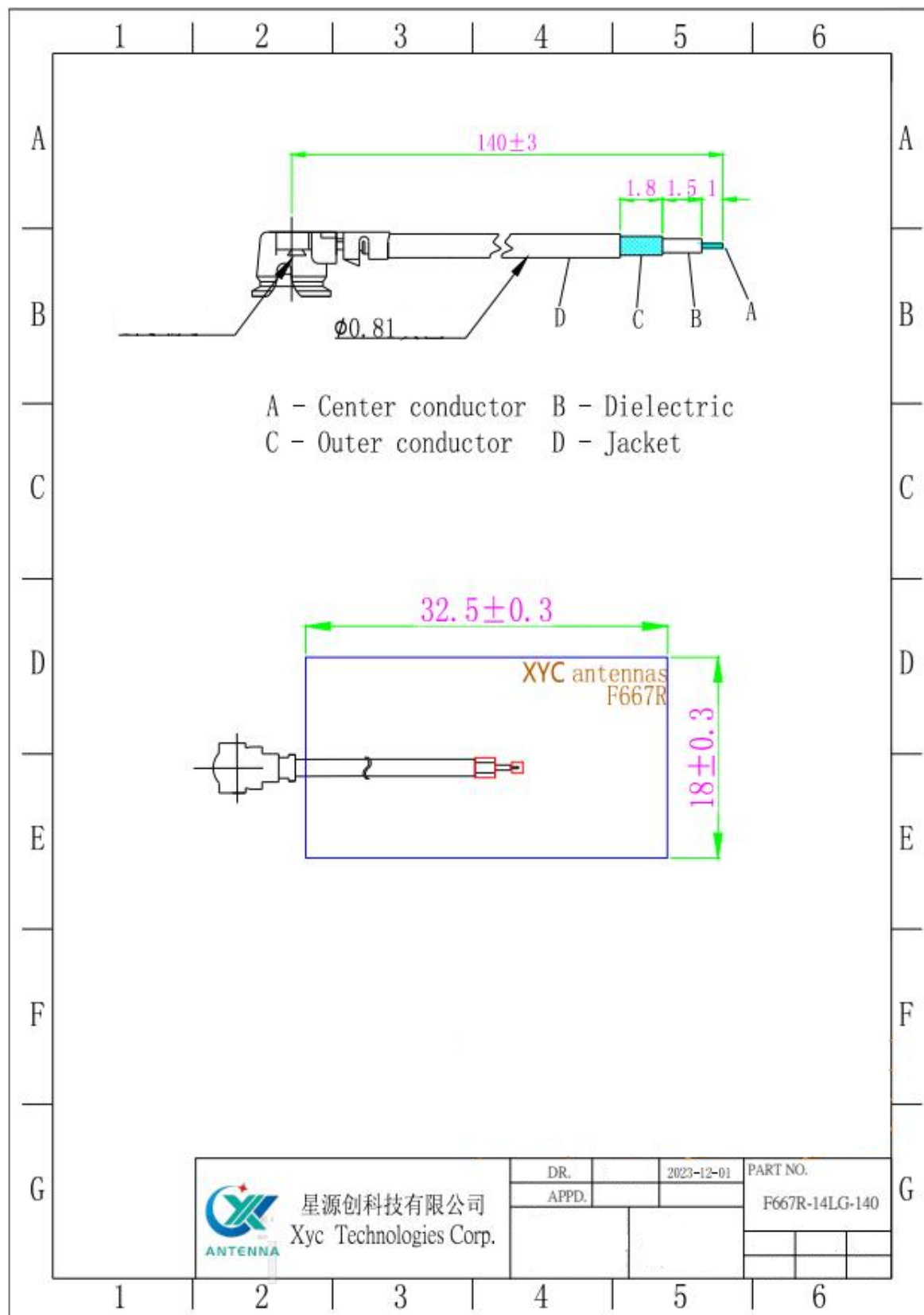
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深圳星源创科技有限公司

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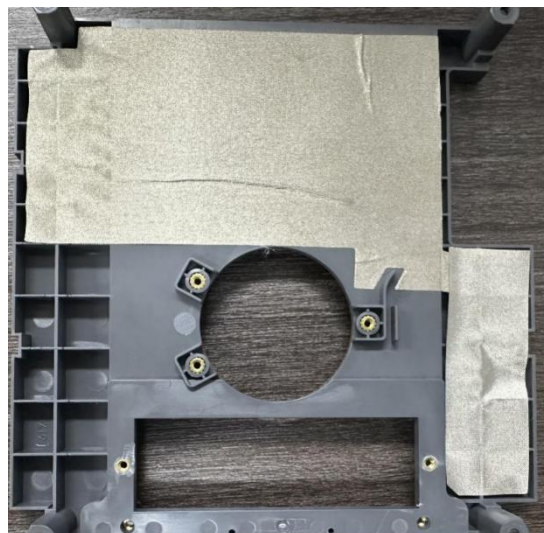
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