

Sample Approval Letter

Document Number:TD

P/N	1416435
Sample adaptation model	M503-N100
Sample description	FPC Antenna WIFI/BT 160MM XYC M503-N100 Main
Project Department	
Testing Department	
Development Department/ NPI Department	
Quality Assurance Department	
Approval	
Version number	V1.0
Remarks	

Form number: GWIIT-QR-RD-017/1.0



Approval Sheet

Customer	Great Wall	Data	2025/09/26
Product	WiFi/BT Main Antenna	Models	M503-N100
P/N	F1369A-14RB-160	Customer P/N	1416435
Specifications	Black FPC; RF0.81 fourth-generation terminal black coaxial cable : L=160mm		

Vender Approved By	Customer Approved By
Checked By:	Checked By:
Audit By:	Audit By:
Approval By:	Approval By:

Document Revision Resume

Version	Revise The Content	Revused	Approval	Date	Note



Content

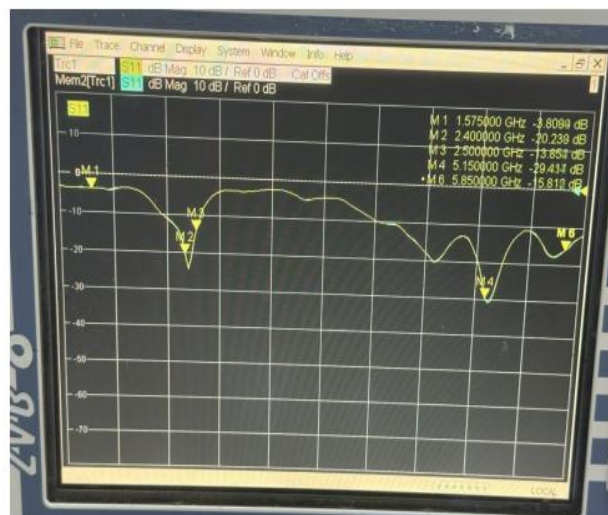
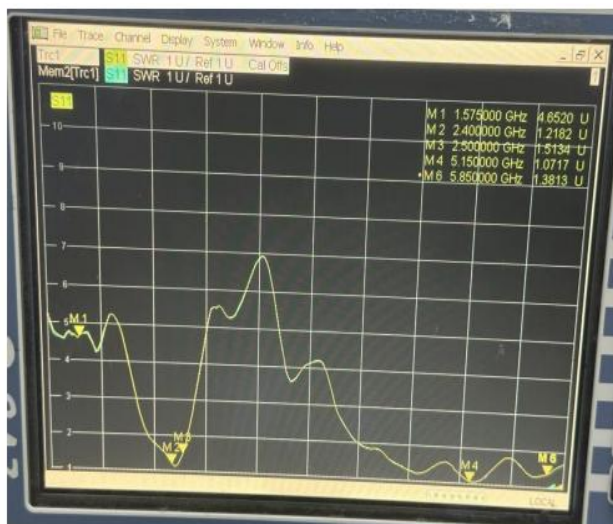
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Specification	
1.1 Electrical Properties	
Characteristics	Specifications
Working Band	2.4G WiFi/5G WiFi
Antenna From	PIFA
Impedance	50 Ω
Polarization	Linear
Peak Effi	20.56%@2.4G; 23.80%@5G
Peak Gain	-1.90dBi@2.4G; -0.23dBi@5G
1.2 Physical Properties	
Characteristics	Specifications
Operating Temp	-10°C~+60°C
Storage Temp	-10°C~+70°C
Humidity	10~95%RH

Test Data

S11 Parameter-VSWR



Frequency (MHZ)	2400	2500	5150	5850
VSWR	1.21	1.51	1.07	1.38
Return Loss (DB)	-20.23	-13.85	-29.43	-15.81

WiFi Active Test Data

802.11b	Frequency	TRP		TIS	
	2412	CH1 11Mbps	8.34	CH1 11Mbps	-76.05
	2437	CH6 11Mbps	7.71	CH6 11Mbps	-76.29
	2467	CH11 11Mbps	7.02	CH11 11Mbps	-76.23
802.11a		TRP		TIS	
	5180	CH36 6Mbps	9.12	CH36 54Mbps	-66.75
	5300	CH60 6Mbps	8.35	CH60 54Mbps	-68.45
	5805	CH161 6Mbps	7.05	CH161 54Mbps	-68.78

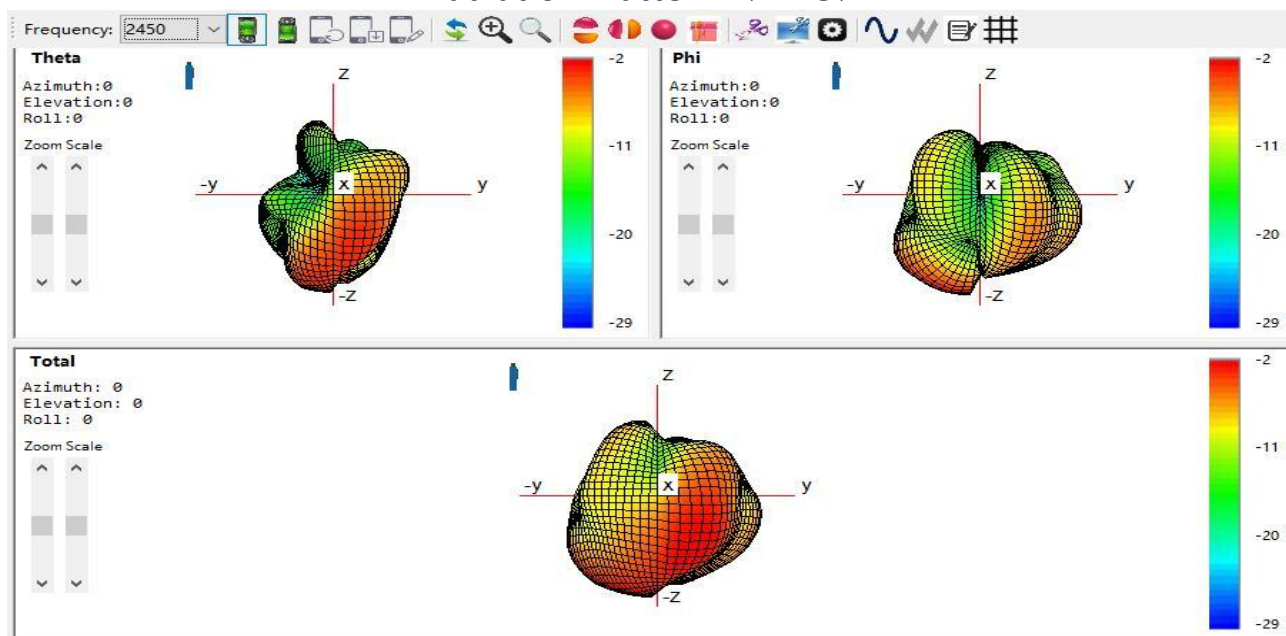


Efficiency Table

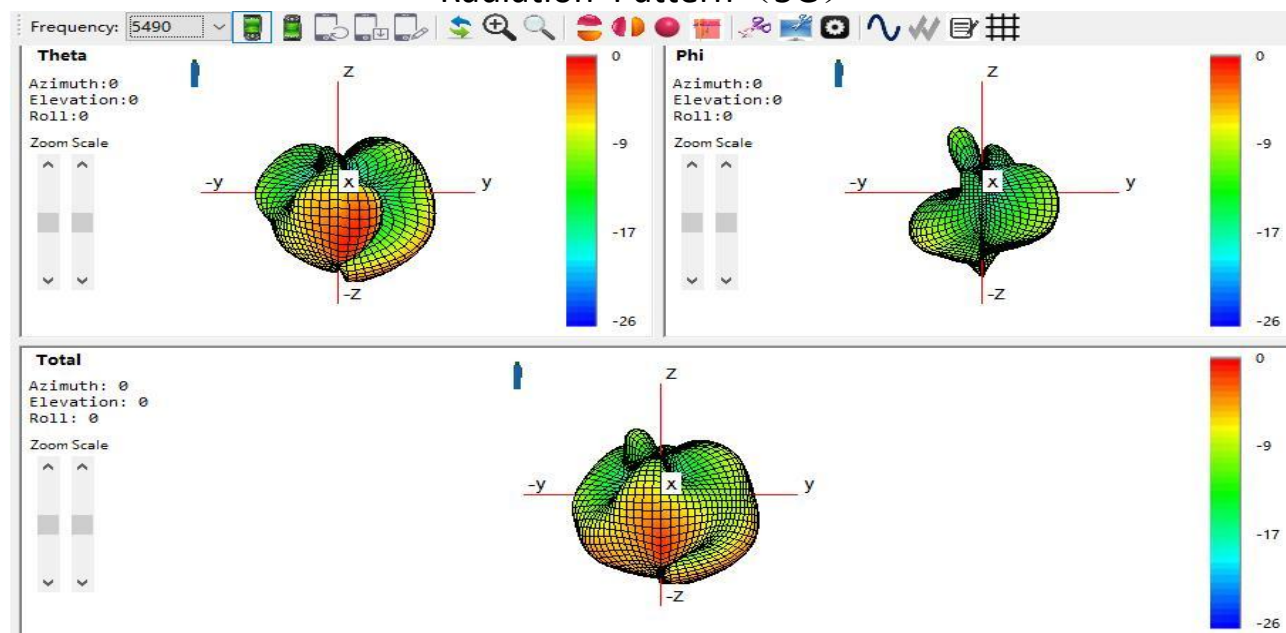
测试频段	测试频率	Efficiency-DB	Efficiency-%	Gain(dBi)
PASSIVE	2400	-7.22	18.98	-2.43
PASSIVE	2410	-7.13	19.34	-2.29
PASSIVE	2420	-7.11	19.43	-2.26
PASSIVE	2430	-7.14	19.34	-2.25
PASSIVE	2440	-7.03	19.8	-2.1
PASSIVE	2450	-6.97	20.1	-2.04
PASSIVE	2460	-6.95	20.18	-2.01
PASSIVE	2470	-6.87	20.56	-1.9
PASSIVE	2480	-6.9	20.42	-1.93
PASSIVE	2490	-6.95	20.17	-2
PASSIVE	2500	-6.97	20.09	-2.03

测试频段	测试频率	Efficiency-DB	Efficiency-%	Gain(dBi)
PASSIVE	5150	-6.46	22.6	-0.32
PASSIVE	5170	-6.48	22.46	-0.35
PASSIVE	5190	-6.39	22.96	-0.38
PASSIVE	5210	-6.27	23.61	-0.44
PASSIVE	5230	-6.23	23.8	-0.48
PASSIVE	5250	-6.27	23.6	-0.56
PASSIVE	5270	-6.35	23.2	-0.5
PASSIVE	5290	-6.43	22.74	-0.45
PASSIVE	5310	-6.38	23.01	-0.31
PASSIVE	5330	-6.35	23.2	-0.23
PASSIVE	5350	-6.41	22.86	-0.3
PASSIVE	5370	-6.42	22.78	-0.39
PASSIVE	5390	-6.59	21.94	-0.73
PASSIVE	5410	-6.72	21.29	-1.07
PASSIVE	5430	-6.74	21.18	-0.99
PASSIVE	5450	-6.78	20.98	-0.96
PASSIVE	5470	-6.84	20.7	-0.92
PASSIVE	5490	-6.91	20.37	-0.89
PASSIVE	5510	-7.02	19.84	-0.93
PASSIVE	5530	-7.02	19.87	-0.87
PASSIVE	5550	-7	19.97	-0.83
PASSIVE	5570	-7.01	19.93	-0.79
PASSIVE	5590	-7.03	19.82	-0.88
PASSIVE	5610	-7.11	19.45	-1.05
PASSIVE	5630	-7.19	19.1	-1.12
PASSIVE	5650	-7.06	19.67	-0.85
PASSIVE	5670	-7.02	19.86	-0.73
PASSIVE	5690	-6.98	20.05	-0.64
PASSIVE	5710	-6.88	20.52	-0.59
PASSIVE	5730	-6.84	20.69	-0.62
PASSIVE	5750	-6.88	20.5	-0.61
PASSIVE	5770	-6.85	20.67	-0.65
PASSIVE	5790	-6.85	20.63	-0.62
PASSIVE	5810	-6.97	20.11	-0.68
PASSIVE	5830	-7.03	19.8	-0.71
PASSIVE	5850	-7.25	18.82	-0.97

Radiation Pattern (2.4G)



Radiation Pattern (5G)



BT Test

Test environment: Corridor channel

Test tool: Bluetooth speaker

Test distance: 10/M (smooth music playback without stalling)

Throughput test

RVR测试系统(2.4G-AC-40M-1-CH6)

TX							RX							
Picture	角度\衰减	0dB	10dB	20dB	30dB	40dB	Picture	角度\衰减	0dB	10dB	20dB	30dB	40dB	
	0.0°	201	202	186	196	192		0.0°	233	235	235	139	85	
	90.0°	201	200	201	193	167		90.0°	238	238	214	109	63	
	180.0°	202	200	201	195	180		180.0°	240	241	234	140	56	
	270.0°	200	201	195	158	53		270.0°	237	241	143	63	20	
	平均	201.00	200.80	195.80	185.50	148.00		平均	237.00	238.80	206.50	112.80	56.00	
	方差	0.80	1.00	7.10	18.40	64.20		方差	2.90	2.90	43.40	36.20	27.00	

Throughput test

RVR测试系统(2.4G-AC-40M-1-CH11)

TX							RX						
Picture	角度\衰减	0dB	10dB	20dB	30dB	40dB	Picture	角度\衰减	0dB	10dB	20dB	30dB	40dB
	0.0°	202	201	200	179	144		0.0°	235	235	211	118	62
	90.0°	201	200	196	191	76		90.0°	226	207	146	114	49
	180.0°	200	186	200	188	161		180.0°	234	233	229	124	66
	270.0°	200	200	189	77	30		270.0°	235	235	140	61	63
	平均	200.80	196.80	196.30	158.80	102.80		平均	232.50	227.50	181.50	104.30	60.00
	方差	1.00	7.20	5.20	54.70	60.80		方差	4.40	13.70	45.10	29.10	7.50

Throughput test

RVR测试系统 (5G-AC-160M-2-CH60)

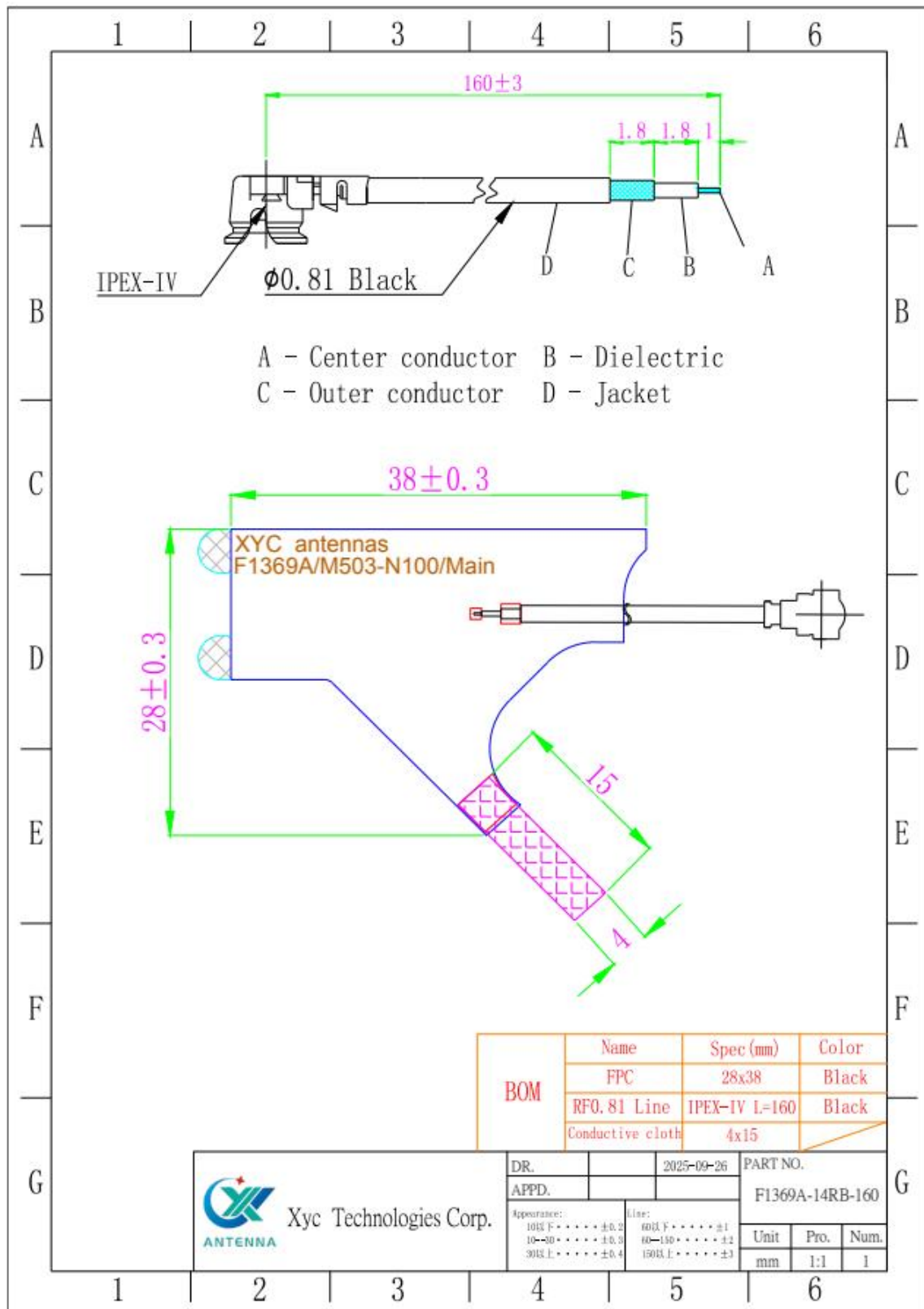
TX							RX						
Picture	角度\衰减	0dB	10dB	20dB	30dB	40dB	Picture	角度\衰减	0dB	10dB	20dB	30dB	40dB
	0.0°	947	948	947	616	184		0.0°	952	952	951	612	192
	90.0°	948	948	933	567	151		90.0°	949	951	948	611	139
	180.0°	949	947	925	317	115		180.0°	949	952	948	396	103
	270.0°	943	948	766	456	189		270.0°	950	949	950	572	274
	平均	946.80	947.80	892.80	489.00	159.80		平均	950.00	951.00	949.30	547.80	177.00
	方差	2.60	0.50	85.00	132.80	34.30		方差	1.40	1.40	1.50	102.90	74.30

Throughput test

RVR测试系统 (5G-AC-80M-2-CH161)

TX							RX						
Picture	角度\衰减	0dB	10dB	20dB	30dB	40dB	Picture	角度\衰减	0dB	10dB	20dB	30dB	40dB
	0.0°	716	727	730	534	208		0.0°	747	746	744	734	492
	90.0°	731	727	543	357	153		90.0°	744	667	741	499	310
	180.0°	727	681	733	539	205		180.0°	747	745	742	741	430
	270.0°	727	692	611	376	154		270.0°	746	743	746	666	328
	平均	725.30	706.80	654.30	451.50	180.00		平均	746.00	725.30	743.30	660.00	390.00
	方差	6.40	23.80	93.40	98.50	30.60		方差	1.40	38.90	2.20	112.50	86.10

Antenna Assembly





Inspection Standard

Xyc Technologies Corp.	File Cod.	XYC-WI-PZ-02	Page.
	File Vers.	A0	1 of 1
File Name	Sampling Plan		

Sampling Level Table

Special Check				General			Batch Scope	Sample Word	Sampling	0.65		1.0		1.5		2.5		4.0		6.0	
S-1	S-2	S-3	S-4	I	II	III				AC	RE	AC	RE	AC	RE	AC	RE	AC	RE	AC	RE
A	A	A	A	A	A	B	2--8	A	2	0	1	0	1	0	1	0	1	0	1	0	1
A	A	A	A	A	B	C	9--15	B	3	0	1	0	1	0	1	0	1	0	1	0	1
A	A	B	B	B	C	D	16--25	C	5	0	1	0	1	0	1	0	1	0	1	1	2
A	B	B	C	C	D	E	26--50	D	8	0	1	0	1	0	1	0	1	1	2	1	2
B	B	C	C	C	E	F	51--90	E	13	0	1	0	1	0	1	1	2	1	2	2	3
B	B	C	D	D	F	G	91--150	F	20	0	1	0	1	1	2	1	2	2	3	3	4
B	C	D	E	E	G	H	151--280	G	32	0	1	1	2	1	2	2	3	3	4	5	6
B	C	D	E	F	H	J	281--500	H	50	1	2	1	2	2	3	3	4	5	6	7	8
C	C	E	F	G	J	K	501--1200	J	80	1	2	2	3	3	4	5	6	7	8	10	11
C	D	E	G	H	K	L	1201--3200	K	125	2	3	3	4	5	6	7	8	10	11	14	15
C	D	F	G	J	L	M	3201--10000	L	200	3	4	5	6	7	8	10	11	14	15	21	22
C	D	F	H	K	M	N	10001--35000	M	315	5	6	7	8	10	11	14	15	21	22	21	22
D	E	G	J	L	N	P	35001--150000	N	500	7	8	10	11	14	15	21	22	21	22	21	22
D	E	G	J	M	P	Q	150001--500000	P	800	10	11	14	15	21	22	21	22	21	22	21	22
D	E	H	K	N	Q	R	500001and over	Q	1250	14	15	21	22	21	22	21	22	21	22	21	22
								R	2000	21	22	21	22	21	22	21	22	21	22	21	22

AC-Qualified RE-No Qualified



Sample Inspection Report

Customer	Great Wall	Product	WIFI Main Antennas	Quantity shipped	5	Sampling quantity	2	
Models	M503-N100	P/N	F1369A-14RB-160	Shipping date	2025/09/26			
Sampling standard	☒ Normal inspection ☐ Tightened inspection ☐ Decrement inspection							
Sampling mode	MIL-STD-105D (II) Single sampling Acceptance limit AQL:CR: 0 Maj: 0.4 Min: 1.5							
Quality acceptance level			CR Acc	0	Maj ACC	0	Min ACC	0
			CR REJ	1	Maj REJ	1	Min REJ	1
project	program of tests	examination requirement	test method	inspection result				decide
				1	2	3	4	
Dimensi onal inspecti on	Line length	160±3	ruler	160	160			OK
	FPC shape	28±0.3	calliper	28	28			OK
	FPC shape	38±0.3	calliper	38	37.9			OK
project	program of tests	examination requirement	test method	Defect description	CR	Maj	Min	decide
visual inspectio	wire sheath	There is no scratching phenomenon on the outer cover	visual	No abnormality	0	0	0	OK
	Solder pad	No oxidation, tin point and other phenomena	visual	No abnormality	0	0	0	OK
	IPEX	No color difference, shrinkage, oxidation, deformation and other undesirable phenomena	visual	No abnormality	0	0	0	OK
electrical specifica tion								
final judgment	☒ OK ☐ NG							

FORM ID NO: XYZ-WF-PZ-001



Bending Test Report

The customer	Great Wall	Product material no	1416435			
The sample quantity	5PCS	Date	2025. 09. 26			
1.The test conditions : The Angle: (135°) frequency: (65±10time/min)						
2.Requirements: (After bending 15 times, there was no problem with the visual inspection)						
3.The test results: OK						
Bending test						
Result Time	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Remarks
Bend 1,500 times	ACC	ACC	ACC	ACC	ACC	1. Appearanceobserved under 40 x copper surface or compound level without air bubbles, delamination, crack defects, etc。 2. 2.Electrical needs using BP machine or E/T test, and pass。 3.Form the ACC is by NG is not through。
The tester:			Review:			

Adhesive Paper Peel Strength Test

Model: 1416435

Experimen tal Title	Test the adhesive force of the adhesive tape		
Experimen tal tools	Test adhesive tape: a rubber rod with a diameter of 5 meters and a plastic sheet with a width of 1CM.		
Experimen t Date	2025. 09. 26	Adhesive tape model	3M9471
Instrumen t	Desktop tensile testing machine	Scope	Peel strength test of base material and adhesive tape

Operation method	Stick a 1CM wide piece of adhesive tape onto the base material, then attach it to a 1CM plastic sheet. Use a glue stick to press the plastic sheet with a force of 5KG and fix it in the lower mold. Then, fix the base material onto the upper mold and pull it upwards at a speed of 15CM/min, recording the value.					
Reference	The reference value for the peel strength of 3M9471 is greater than 1kg/100MM					
The experimental data are as follows:						
Sample	Maxim um force	1	2	3	4	5
Test data		1. 61	1. 72	1. 35	1. 06	1. 54

The data statistics results are as follows:

Maximum value	1. 72	Minimum value	1. 06
Average value	1. 46	Sampling result	OK



I-pex Terminal Tension Test

Model: 1416435

Experiment al Title	I-PEX terminal tensile test		
Experiment al tools	Tensiometer		
Experiment Date	2025.09.26	Terminal model	Fourth-generation I-PEX seat
Instrument	Tensiometer	Scope	The tensile force between the terminal and the coaxial line must not be less than 0.8KG

Operation method	Fix the I-PEX terminal on the tension fixture, then pull the terminal with a force less than 1.0KG and record the value of the tension meter.					
Reference	The reference value is less than 0.8KG					
The experimental data are as follows:						
Sample	Maxim um force	1	2	3	4	5
Test data		0.81KG	0.82KG	0.805KG	0.80KG	0.83KG

The data statistics results are as follows:

Maximum value	0.83KG	Minimum value	0.8KG
Average value	0.81	Sampling result	OK

Packing Specification

