

Shenzhen yGalax Technologies
Limited

Name: Sample Approval

Ver: V4.0

date: 2025.06.06

Sample Approval Sheet

Project Name: TC10Sample Name: MAIN antennaSample SPEC: MAIN—FPC Antenna + CABLE

Customer PN.:

Transfer Date: 2025.06.06

Supplier Confirm	Project	Engineer	Quality
date			

Customer confirm	PM	Electron	MD	PD	QE
date					

conclusion	☐ MP	☐ Limits use () K	☐ ROHS
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Supplier name: Shenzhen yGalax Technologies LimitedThe Supplier address: Unit F, 4/F,
BlockA, Junxiangda Plaza, Zhongshanyuan Road,
Nanshan District, Shenzhen, China

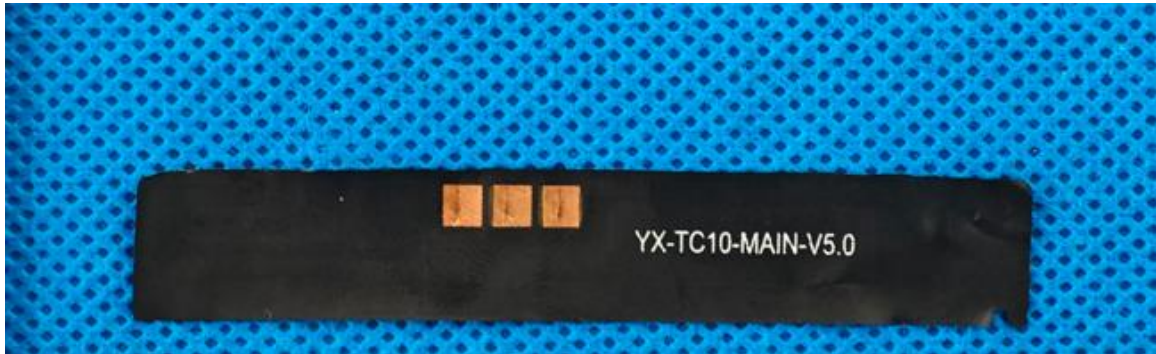
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1. Specification overview

This specification describes the condition of built-in MAIN antenna of STONE01M JC06. It is frequency band WCDMA+LTE is manufactured by **Shenzhen yGalax Technologies Limited**.

2. Appearance

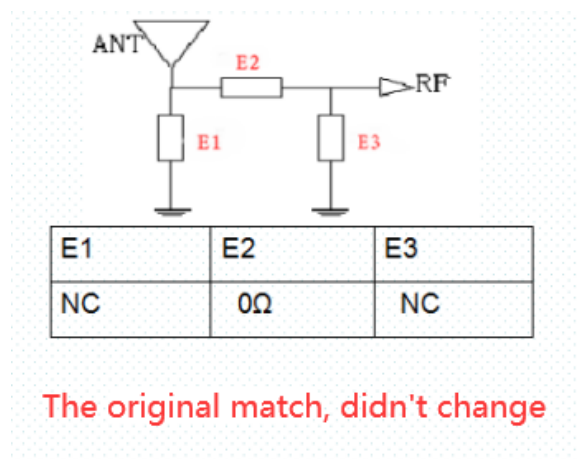


3. Electrical properties

3.1. Antenna frequency band

	3G&4G
Emission spectrum(MHz)	700~2690
Receiving frequency band(MHz)	700~2690

3.2. Matching circuit

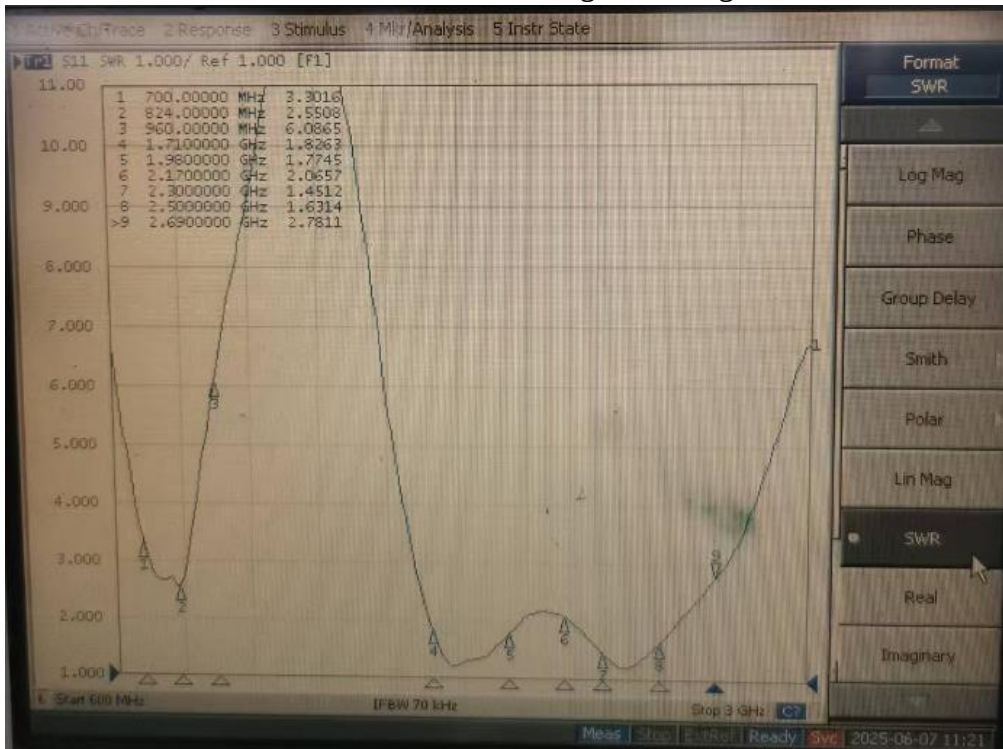


3.3 Impedance requirements

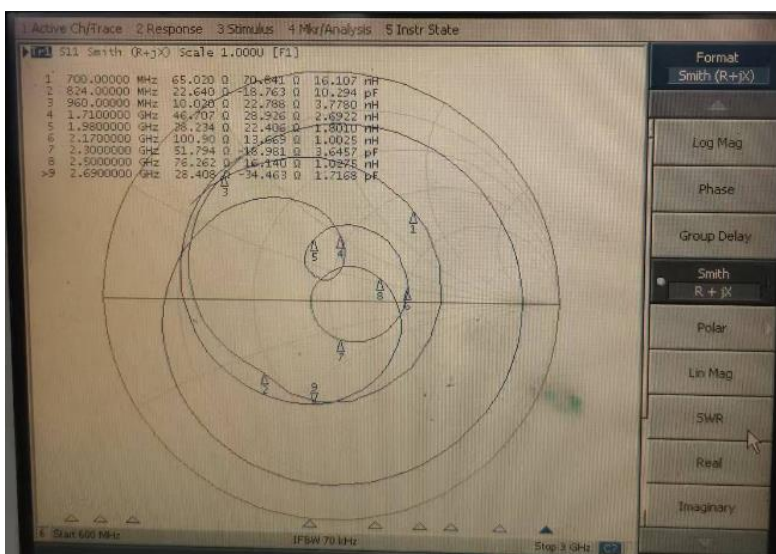
50 ohm

3.4 Antenna test data

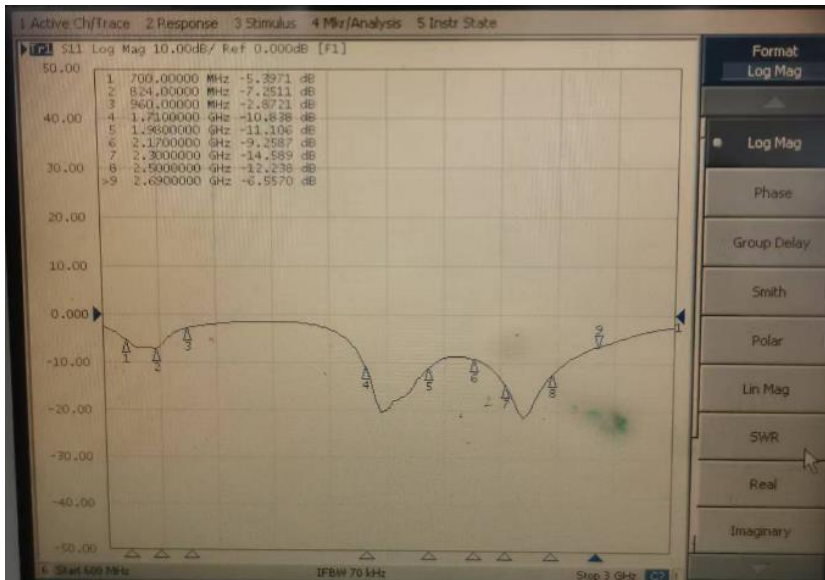
1. The Main antenna test data Passive standing wave diagram of main antenna:



2. Smith chart of main antenna:



3 Return loss of main antenna:



4. Passive gain efficiency of main antenna:

Frequency	Efficiency	Efficiency / %	AvgGain/dBi
700	-8.05	25.53	-5.93
720	-8.21	29.34	-5.33
740	-7.85	23.92	-6.21
760	-7.98	21.61	-6.65
780	-7.8	26.6	-5.75
800	-7.89	26.26	-5.81
820	-8.07	25.6	-5.92
840	-7.36	28.37	-5.47
860	-7.05	29.72	-5.27
880	-7.14	29.32	-5.33
900	-7.56	27.54	-5.6
920	-8.82	23.12	-6.36
940	-8.29	24.83	-6.05
960	-8.38	24.52	-6.1

Frequency	Efficiency	Efficiency / %	AvgGain/dBi
1700	-5.51	28.12	-5.51
1720	-4.85	32.73	-4.85
1740	-4.43	36.06	-4.43
1760	-4.06	39.26	-4.06
1780	-3.93	40.46	-3.93
1800	-3.76	42.07	-3.76
1820	-3.8	41.69	-3.8
1840	-3.95	40.27	-3.95
1860	-3.93	40.46	-3.93
1880	-3.99	39.9	-3.99
1900	-4.15	38.46	-4.15
1920	-4.42	36.14	-4.42
1940	-4.57	34.91	-4.57
1960	-4.64	34.36	-4.64
1980	-4.63	34.43	-4.63

Frequency	Efficiency	Efficiency / %	AvgGain/dBi
2000	-4.99	31.7	-4.99
2020	-4.75	33.5	-4.75
2040	-4.51	35.4	-4.51
2060	-4.38	36.48	-4.38
2080	-4.22	37.84	-4.22
2100	-4.12	38.73	-4.12
2120	-3.93	40.46	-3.93
2140	-4.01	39.72	-4.01
2160	-3.79	41.78	-3.79
2180	-3.83	41.4	-3.83

Frequency	Efficiency	Efficiency / %	AvgGain/dBi
2300	-3.03	49.77	-3.03
2320	-2.99	50.23	-2.99
2340	-3.03	49.77	-3.03
2360	-2.91	51.17	-2.91
2380	-2.82	52.24	-2.82
2400	-2.98	50.35	-2.98
2420	-3	50.12	-3
2440	-3.08	49.2	-3.08
2460	-3.01	50	-3.01
2480	-3.16	48.31	-3.16
2500	-3.19	47.97	-3.19
2520	-3.26	47.21	-3.26
2540	-3.46	45.08	-3.46
2560	-3.46	45.08	-3.46
2580	-3.74	42.27	-3.74
2600	-3.76	42.07	-3.76
2620	-3.87	41.02	-3.87
2640	-3.99	43.2	-3.65
2660	-4.49	39.65	-4.2
2680	-4.68	38.73	-4.12
2700	-4.88	37.91	-4.2

FS	Channel	TX (dBm)	RX (dBm)	FS	Channel	TX (dBm)	RX (dBm)	FS	Channel	TX (dBm)	RX (dBm)
LTE-1	L	18.06		LTE-18	L	16.74		LTE-34	L	17.56	
	M	18.11			M	16.68			M	17.48	
	H	18.06	-95. 17		H	17.06	-88. 36		H	17.48	-93. 44
LTE-3	L	18.07		LTE-19	L	17.3		LTE-38	L	20.32	
	M	19.14			M	17.4			M	20.47	
	H	19.68	-94. 2		H	17.36	-89. 96		H	19.91	-92. 63
LTE-5	L	17.06		LTE-20	L	17.15		LTE-39	L	18.47	
	M	17.34			M	17.51			M	18.19	
	H	17.26	-88. 27		H	17.44	-89. 14		H	18.16	-88. 89
LTE-7	L	19.56		LTE-25	L	19.27		LTE-40	L	19.14	
	M	19.85			M	18.8			M	18.81	
	H	19.76	-94. 82		H	18.17	-93. 6		H	18.51	-91. 91
LTE-8	L	17.31		LTE-26	L	17.7		LTE-41	L	19.93	
	M	18.21			M	17.15			M	20.05	
	H	17.85	-89. 19		H	17.26	-87. 31		H	18.83	-91. 53
LTE-12	L	15.78		LTE-28	L	16.13		LTE-2	L	18.6	
	M	16.05			M	16.06			M	19.39	
	H	16.34	-86. 69		H	16.11	-88. 34		H	19.35	-93. 2
LTE-17	L	15.76		LTE-66	L	17.75		LTE-4	L	18.16	
	M	16.03			M	18.72			M	18.4	
	H	16.31	-85. 26		H	18.02	-93. 56		H	19.29	-94. 36
LTE-13	M	16.81	-82. 7	LTE-9	L	18.75		WIFI	1	15.73	
					M	19.34			6	15.59	
					H	19.66	-91. 13		11	16.39	-83. 95

3.5 Environmental treatment

Here, conductive cloth and screen grounding are added.



4 Appearance structure

4.1 Antenna material

Antenna material: FPC antenna, black ink, gold plating on exposed copper area.

Substrate + double sided adhesive tape + release paper

Cable line: the total length of the cable is 33.00mm, the wire diameter is 0.81mm, With four generations terminals.

4.2 Structural drawings

1

2

3

4

5

6

7

A

B

C

D

E

F

G

H

1

2

3

4

5

6

1

2

3

4

5

6

Describe:

1. Content "XXXX" indicates production date (year and week, e.g. 2101)

Note:

4. MATERIAL :18/12.5 (One and a half) electrolytic copper, PI substrate half to half. The green line shows the outline of the copper layer, and the purple line shows the shape.

2. Tolerance requirements are not noted :A. copper foil to copper foil +/-0.05 B. Copper foil to shape +/-0.15(special requirements)

A. Tolerance from hole to shape +/-0.15(+/-0.10 if special requirements)

3. Nickel plating: NI: 2-7um Al: not less than 0.025um (salt spray must be over 48H), ink:

4. This FPC adhesive is 3M 9471LSE, the adhesive should be super strong!

5. Size requirements:

5.1. ST size: The minimum measurement quantity is any 35 product sizes selected from 500 for CPK analysis;

5.2. * size is the key control size;

6. Any material modification must be approved in writing by the Ygalax Engineering Department and passed all tests by the Ygalax Quality Department;

7. Products must meet ROHS/HF/REACH standards;

MAIN FPC (black)

TEM

PART NAME

CLIENTE UMRE

P/N

ED, PI

MATERIAL

Q'TY

REMARK

XXX

XXX

GENERAL TOLERANCE TABLE

L INEAR

DIVISION

TOLERANCE

ANGULAR

UNIT

PART NUMBER

0-12

±0.05

0-9°

±0.5°

mm

YX0728-TC10

10-50

±0.10

5-20°

±1°

SEE NOTE

50-80

±0.15

20-30°

±1.5°

SEE NOTE

>80

±0.2

SEE NOTE

SIZE

REF CHD

REF DR

SCALE

FULL

PAGE

1 of 1

REV

A1

YX0728 (MAIN FPC)

ShenZhen yGalax.com

REVISION

ECO#

REVISION NOTE

AUTHOR

DATE

A1

New release

06/06.25

Silk-printed white characters, 1.5MM in height

50.07±0.2±0.2

19.85±0.2±2

YX-TC10-MAIN-V4.0

Gold-plated area

No back glue

13.52±0.2

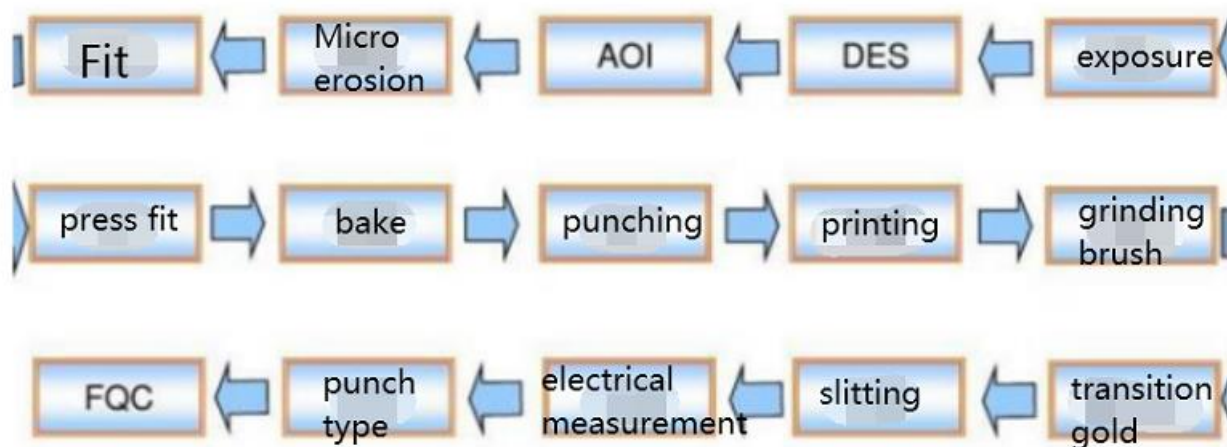
Delivery method: single pcs packaging

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5. List of raw materials (BOM)

List of main materials								
number	Product information						Test report	
	Code (component Code)	Product name	重量 (g)	Name of raw material	Raw material No Chemical registration number	Raw material supplier	Certification company	Report no
1	FPC antenna	Copper foil substrate (PI)	0.0542	CU	SP14-033405-SH	Cai lungeti	SGS	SHA16-245544-02
			0.03	polyimide film				
2		Ink (black)	0.005	PRINT INK (Printing ink)	P800	Youli	SGS	
3		Adhesive paper	0.1132	3M	3M9471LSE	Weilihua	SGS	
4		Electrogold	/	additive	JSTD8001	Kingsoft	SGS	CAMEC1617433203
5	Coaxial line	wire rod	/	Teflon		Jiang Lian	SGS	
		Tabulation:	hejuan				sushaolong	

6 .Production flow chart



7 .Reliability test report

Reliability test report

The customer	STONEISOL	The customer model	TC10	Product model	MAIN	DATE	2025/6/6	Inspector: GU
Number	Reliability project	The experimental method	Decision criteria	Cycle	number of experiments	1	2	3
1	Peel strength	Tension meter	From 70 to 80 n/100mm(paste) on ABS material	time/batch	5PCS	OK	OK	OK
2	The coating adhesion	Clean surface of FPC goldfinger, then on the surface of gold finger put new 3 #600 back glue, laminating surface to cover the surface of gold finger, and residual pressure must not have bubbles with his fingers. About 10 seconds, along with gold finger side into the direction of the Angle of 90 degrees quickly pull up the tape, and repeat this three times this action.	Check the surface gold finger without coating fall off phenomenon, there is no loss of coating film of adhesive tape.	1 time/batch	5PCS	OK	OK	OK
3	Salt fog	At 35°C plus or minus 2 °C airtight environment and the salt solution with a PH value of 6.5 to 7.25(5% solution composition of 95% sodium chloride and distilled water) with 80 square centimeters to 100mm diameter of the atomizer in 16 hours average collection in 1 to 2ml of spray amount, continuous spray after 48 hours to take out the test.	FPC not blister. Oxidation discoloration and rust.	1 time/batch	5PCS	OK	OK	OK
4	Bending test	Positive and negative bending 180°, 30 times	Still conduction after bending, performance is good	1 time/batch	5PCS	OK	OK	OK
5	High and low temperature impact	will be set to high and low temperature test chamber cold-30°C, the temperature is set to +70 °C, the switching speed for 30 seconds, each holding 0.5H, is set to 32. After the test after back 2 hours at room temperature.	Good electrical	1 time/batch	5PCS	OK	OK	OK
6	High temperature and high humidity test	Test environment: temperature of 60 plus or minus 2 °C; Humidity is 93+/-3%(RH); Place for 48 hours; Recovery time: 2 hours	Good electrical	1 time/batch	5PCS	OK	OK	OK

Prepared: GU

checked by :XIAO

Control number: SR-FM-QRA-008

8 . GP test report of antenna and accessory materials (ROHS.SGS . MSDS) :

Some information of FPC antenna



ETR21805816-(
优立黑色系列)
SGS报告



FPC-94711LE-RO
HS系列卤素

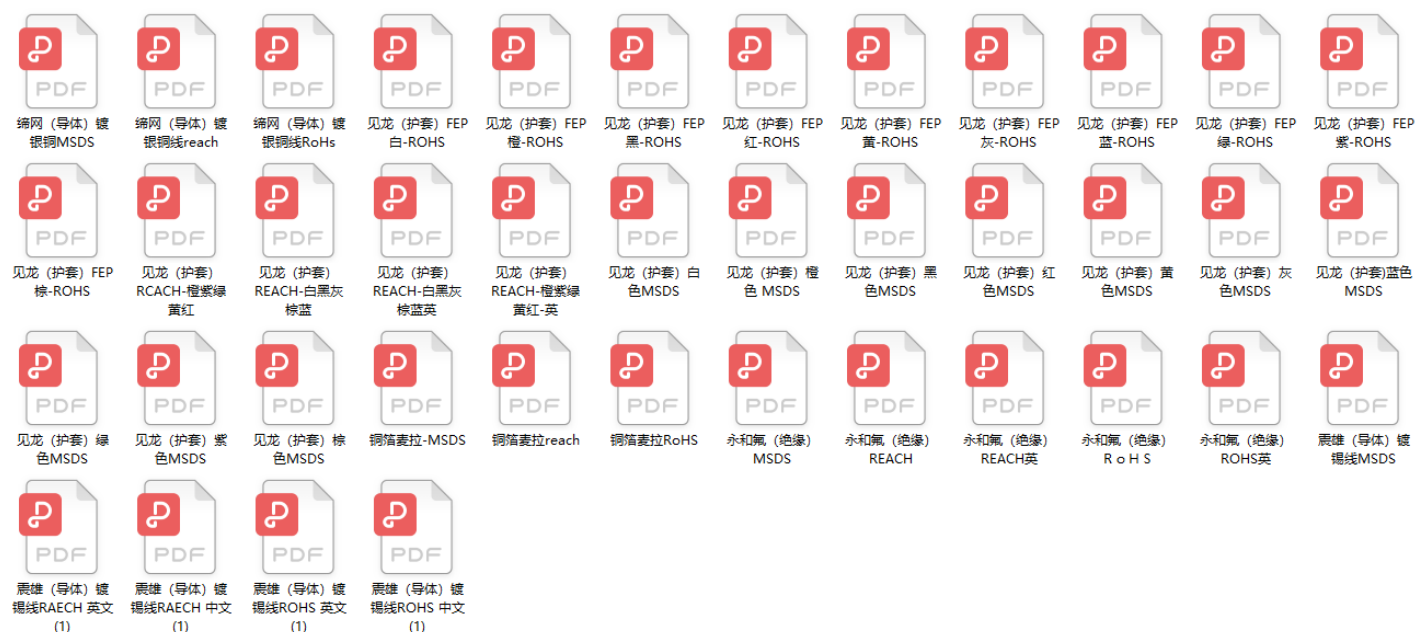


FPC-镀金-ROHS
报告-中文版



SVHC-基材中文
-ROHS

CABLE:



Due to the large number of pages, the above RoHS. SGS. MSDS data will be provided in electronic form.

9 .Packing method

FPC + coaxial antenna single PCS shipment, about 100 PCS, a small bag into a large bag again, the last is put into a small carton, a small box of about 3000 PCS antenna.

