SPECIFICATION

Daxian Communication Technology Limited

Shenzhen Daxian Technology Co., Ltd .

TOPANT

Unimax L13 B42 antenna

Product specification book

client	Unimax	frequency range	3400MHz-3700MHz
project name	L13	edition	V01
Material number	5L-13XXX-109	pigment	black
RF design	Peng.Hu	architectural design	YeZhi.Bi
QA Manager	ZiYin.Hu	Technical Director	Lei.Zhang
date	2022-11-29		

Customer confirmation:

Does the assembly meet your requirements: ☐ OK ☐ NG

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version number	Change the content	Change reason	Initiate the change party	date	modifier
V1.0	found			2022.11.29	

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Ⅰ project description

Customer Name:	Unimax
Complete machine type:	MIFI
Antenna band:	3400MHz-3700MHz
Antenna form:	FPC
Feeding form:	welding
Number of feeders:	/
Hardware version:	/

Ⅱ B42 antenna

1 Specifications

This report mainly provides the router antenna L13 Test status of various electrical and structural performance parameters. The following picture shows the antenna picture of the display design.

Appearance diagram of the whole machine and the antenna appearance diagram

1.1 Electrical specification standard

The frequency range of the antenna is 3500 ~ 3700 MHz. The following table indicates the electrical performance specifications of the antenna. The antenna is designed and manufactured by a large display.

Frequency Range	Frequency (MHz)	VSWR
B42	**3400 ~ 3700**	**≤ 3**

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1.2 Antenna composition

The antenna is mainly composed of FPC .

2、 The Equipment of Active Test

Satimo 3D Chamber 6×4×4(m)

Ag ilent 8960 E 5515c

Network analyzer-R&S ZVL

graph 2

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3 Test

3.1 Standing Wave (VSWR) test

3.1.1 3. Test connection: The sequential connection of the VSWR test device is: R & S ZVL network analyzer test line test and treatment

Measured (attached)

3.2 Gain and efficiency, power (TRP), sensitivity (TIS) testing

3.2.1 Test Site:

Large display microwave dark chamber. The test frequency range was 400MH z- -6GHz, the static area range was 50cm circumference, and the reflectivity was less than-50 dB.

3.2.2 Test instrument:

R & S ZVL Network Analyzer, Agilent8960 E5515C, Standard Speaker Antenna, French SATIMO-SG24SYSTEM System, Printer, etc.

3.2.3 Test data: In the microwave dark room, the test power and sensitivity-related values are shown in the following table:

OTA Passive Efficiency & Gain-B42 antenna：

Main set

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
3400	38.47	-4.15	1.35
3420	37.64	-4.24	1.28
3440	35.61	-4.48	0.87
3460	38.87	-4.1	1.05
3480	38.95	-4.1	0.87
3500	42.07	-3.76	1.3
3520	44.39	-3.53	1.25
3540	46.45	-3.33	1.21
3560	47.51	-3.23	1.36
3580	50.93	-2.93	1.89
3600	48.43	-3.15	1.75
3620	47.93	-3.19	1.81
3640	46.27	-3.35	2.09
3660	46.49	-3.33	1.67
3680	45.9	-3.38	1.72
3700	46.57	-3.32	1.38

diversity

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
3400	40.3	-3.95	2.74
3410	40.77	-3.9	2.77
3420	39.4	-4.04	2.52
3430	42.12	-3.76	2.96
3440	39.49	-4.03	2.47
3450	41.64	-3.81	2.68
3460	40.95	-3.88	2.43
3470	41.4	-3.83	2.61
3480	39.03	-4.09	2.2
3490	39.51	-4.03	2.17
3500	40.42	-3.93	2.62
3510	38.43	-4.15	1.78
3520	40.41	-3.93	2.25
3530	39.11	-4.08	2.07
3540	40.68	-3.91	2.23
3550	40.14	-3.96	2.25
3560	40.38	-3.94	2.36
3570	40.44	-3.93	2.77
3580	40.67	-3.91	2.78
3590	41.47	-3.82	3.19
3600	38.57	-4.14	2.64
3610	40.72	-3.9	3.09
3620	39.5	-4.03	2.73
3630	40.76	-3.9	2.84
3640	40.16	-3.96	3.06
3650	42.26	-3.74	2.83
3660	44.02	-3.56	3.22
3670	43.14	-3.65	2.88
3680	46.85	-3.29	3.72
3690	43.57	-3.61	2.86
3700	46.09	-3.36	3.51

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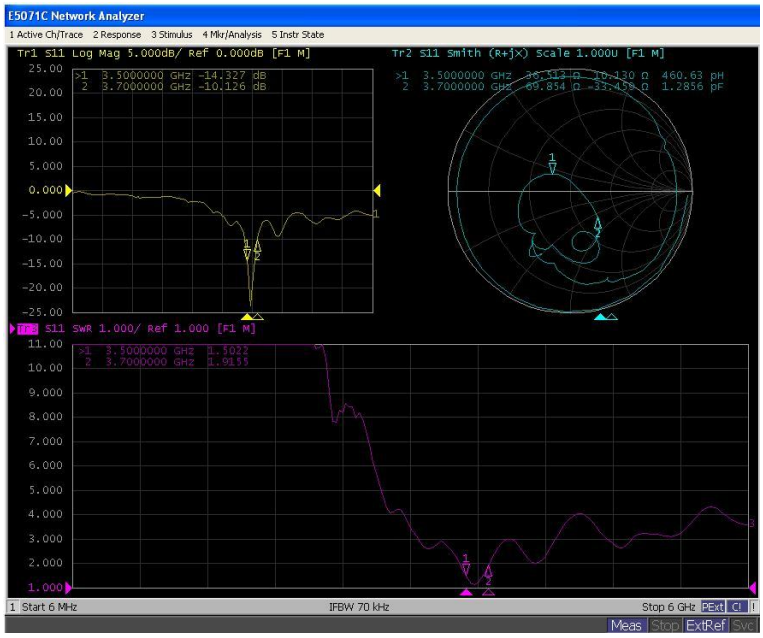
4. Conclusion:

This antenna is designed on the basis of customer-provided prototype. Electrical parameters and structural performance have met the technical requirements. Please confirm!

5. Attachment chart

5.1 Parameters of Return Loss and VSWR and impedance diagram- - antenna

Main set



diversity

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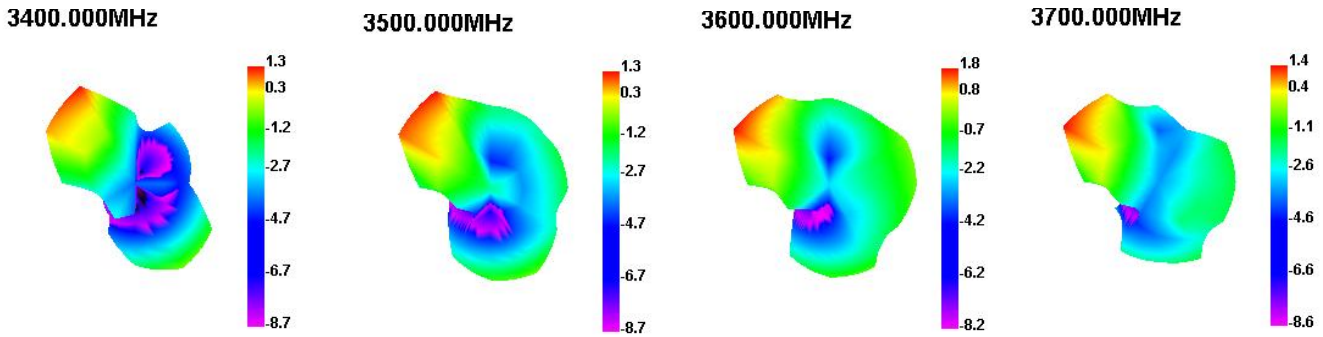
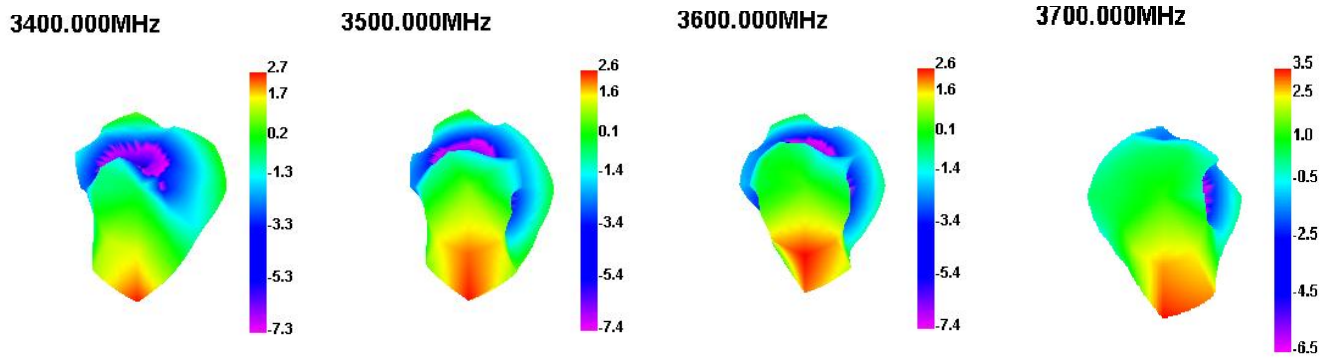
6. 2D&3DPassive field type diagram

Main set



diversity



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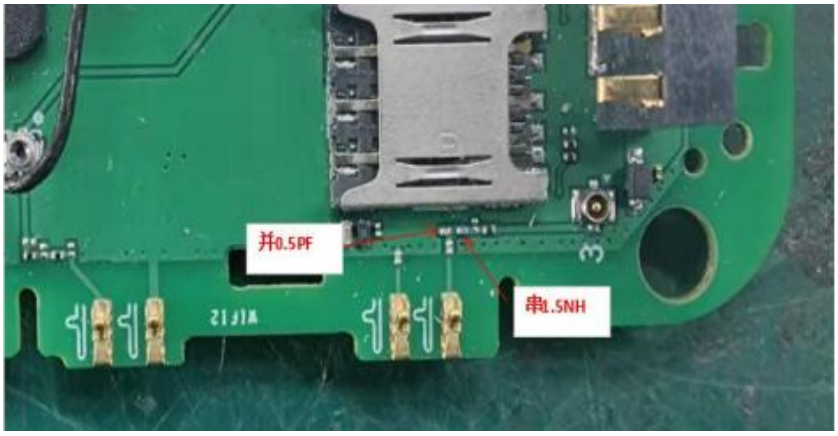
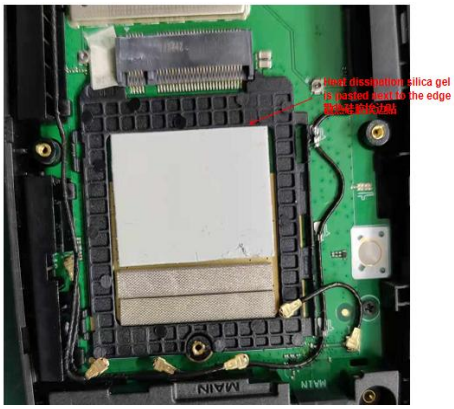
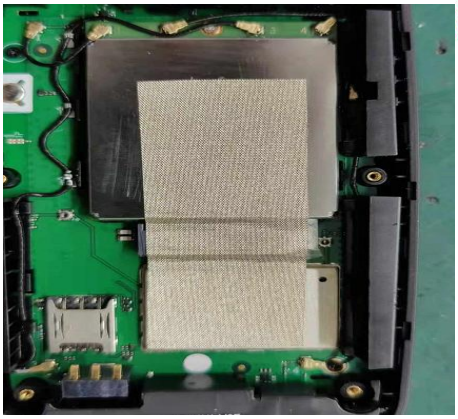
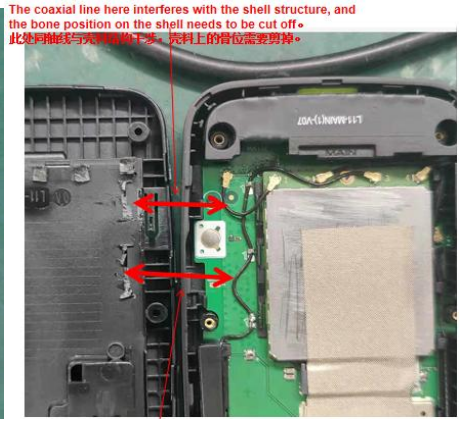
7. Matching circuit-Diversity matching



8. Environmental treatment







The width of the conductive cloth must be increased, or it will affect the IF TIS. At present, two conductive sponges are pasted to increase the grounding width.

导电布的宽度必须加大，否则对中频 TIS 有影响。目前是贴了两条导电海绵增加接地宽度.

The module should be grounded with the main board shield, otherwise it will have a great impact on the low-frequency TIS. Current conductive cloth size: 23mm * 58mm.

模块要跟主板屏蔽罩接地，否则对低频 TIS 影响很大。目前的导电布尺寸：23mm*58mm.

The coaxial line here interferes with the shell material structure, and the bone position on the shell material needs to be reduced. (The coaxial line here is bent to avoid B48 receiving coaxial line being too close to the antenna).

此处同轴线与壳料结构干涉，壳料上的骨位需要减掉。（此处同轴线折弯，避免 B42 接收同轴线离天线太近）.

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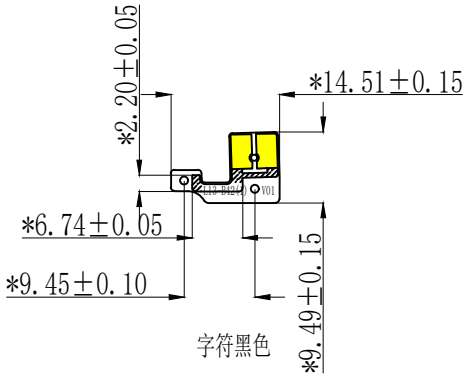
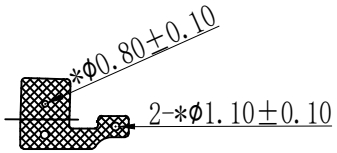
版 本	标 记	更 改 内 容	签 名	日 期



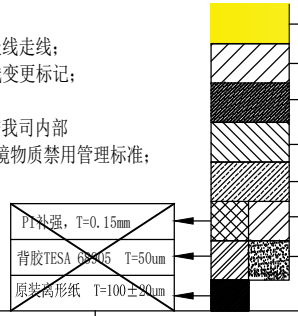
正面



反面

技术要求:

1. 正面代表FPC铺铜走线覆盖油墨或覆盖膜部分,
   背面代表背胶原装胶纸部分;
2. 带“*”尺寸为重点尺寸,带“CPK”需要做CPK的尺寸,
   “( )”为实配尺寸,“△X”为设计变更;
   未注公差参照公差表;
3. 表面干净,无脏污,无露铜,脱落等不良;
4. 红色线 ▭ 为FPC的最大外形,绿色线▬为天线走线;
   黄色线——为离型纸切断线,蓝色线—— 为天线变更标记;
   ▭为镀金区,▬为背胶区,▭为离形纸手撕位;
5. 满足盐雾实验/附着力测试等相关可靠性测试,按我司内部
   可靠性试验标准执行,所有物料均符合我司产品环境物质禁用管理标准;
6. FPC来料按整版方式制作;
7. 产品包装必须干净、整洁,包装过程
   不允许对产品造成脏污。



层叠图及材料规格	
镍2-6um;金≥0.025um	
黑色油墨 黑色丝印	T=15±5um
电解铜	T=0.5oz
热固胶	T=13um
PI基材	T=12.5um
背胶3M9471	T=50um
原装离形纸	T=100±20um

公 差 表	
长宽50mm以下规则的外形到外形	±0.10
长宽50mm以上不规则的外形到外形	±0.15
走线到外形	±0.15
走线到走线	±0.05
孔径	±0.05
孔中心到外形	±0.15
孔中心到孔中心	±0.10
油墨到走线	±0.30
补强或背胶到外形	±0.35

机 种	L13	名 称	B42天线	审核	周康
项目编码	BL-13XXX-109	R F	胡鹏	批准	张磊
零件编码	5L-13XXX-109-1	结构	闭业智	日期	2022-11-23
版 本	A1	图框	A4		
比 例	1:1	第三视角			
单 位	MM				

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