

SPECIFICATION



Daxian Communication Technology Limited

深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

易力声 BTH-1469 左耳蓝牙天线

INNOVATION BTH-1469 Left ear Bluetooth antenna

产 品 规 格 书

Product Specification

客 户 connection	易力声 INNOVATION	频 段 frequency range	2400 ~ 2500MHz
项目名称 entry name	BTH-1469	版 本 edition	V01
物料编号 Material No	2T-H1469-040	颜 色 Color	银色 silvery
客户料号 Customer Item Number	HA.E.03314690005ZR		
R F 设计 R F Design	胡 鹏 Peng.Hu	结构设计 Structural Design	赖宁平 Ningping Lai
品质经理 Quality Manager	杨 进 Jin.Yang	技术总监 Technical Director	张 磊 Lei Zhang
日 期 Date	2023-10-17		

客户确认:

Customer confirmation:

装配是否符合贵司要求: ☐OK ☐NGWhether the assembly meets your company's requirements: ☐OK ☐NG

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一 项目说明 Project Description

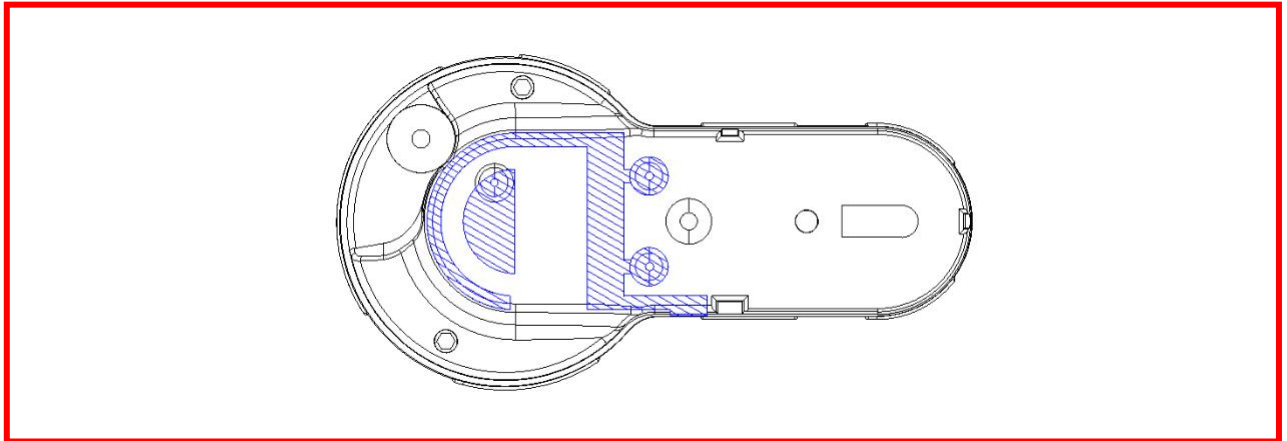
客户名: Customer Name:	易力声 INNOVATION
整机类型: Type of complete machine:	耳机 headset
天线频段: Antenna band:	2400 ~ 2500MHz
天线类型: Antenna type:	PIFA 全向天线 PIFA omnidirectional antenna
馈电形式: Feed form:	弹片 shrapnel
馈脚数量: Number of feed legs:	两个 Two

二 BT 天线 BT Antenna

1 规格 specifications

本报告主要提供 BTH-1469 项目天线的各项电气和结构性能参数的测试状况。下图为大显设计的天线图片。

This report mainly provides the testing status of various electrical and structural performance parameters of the antenna for the BTH-1469 project. The following image shows an antenna with a large display design.



天线外观图

antenna appearing diagram

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1.1 电气规格标准 Electrical specifications and standards

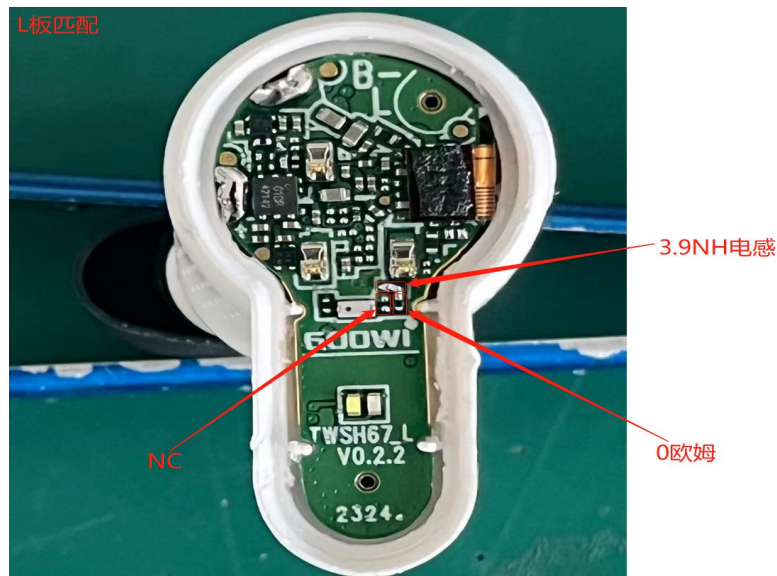
1.1.1 电性能指标 Electrical performance index

天线工作频段在 **2400 ~ 2500 MHz**。下表是大显设计和量产天线的电性能指标。

The operating frequency band of the antenna is between 2400 and 2500 MHz. The following table shows the electrical performance indicators of large display design and mass production antennas.

Frequency Range	Frequency (MHz)	VSWR
BT-L	2400 ~ 2500	≤ 4

1.1.2 天线匹配 Antenna matching



1.2 结构规格标准 Structural specifications and standards

1.2.1 天线组成 Antenna composition

天线主要是由 LAP 组成。

The antenna is mainly composed of LAP.

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2、测试设备 The Equipment of Active Test

Satimo 3D Chamber $6 \times 4 \times 4$ (m)

Agilent 8960 E5515c

Network analyzer-R&S ZVL



图 2

Figure 2

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3 测试 test

3.1 驻波(VSWR)的测试 Test of standing wave (VSWR)

3.1.1 测试连接: VSWR 测试装置依次的连接为: R&S ZVL 网络分析仪 → 测试线 → 测试治

Test connection: The VSWR test device is sequentially connected as follows: R&S ZVL network analyzer → test line → test fixture

实测(附图)Actual measurement (attached drawing)

3.2 增益及效率、功率 (TRP)、灵敏度 (TIS) 的测试

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

3.2.1 测试的场地 Test site:

大显微波暗室。测试频率范围为 400MHz—6GHz, 静区范围为 50cm 圆周, 反射率小于 -50 dB。

Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than -50dB.

3.2.2 测试的仪表 Tested Instruments:

R&S ZVL 网络分析仪、Agilent8960 E5515C、标准喇叭天线、法国 SATIMO-SG24SYSTEM 系统、打印机等。

R&S ZVL network analyzer, Agilent 8960 E5515C, standard horn antenna, French SATIMO-SG24SYSTEM system, printer, etc.

3.2.3 测试数据 : 在微波暗室中, 测试的功率和灵敏度相关的数值如下表

Test data: In a microwave anechoic chamber, the values related to the power and sensitivity tested are shown in the table below

OTA 有源测试 OTA Active Test:

L-Free Space			
BAND	CH	TRP (dBm)	TIS (dBm)
BT	0	-3.11	-86.73
	34	0.82	-85.62
	36	0.93	-86.83
	39	1.07	-85.06
	74	3.13	-86.34
	78	3.56	-86.41

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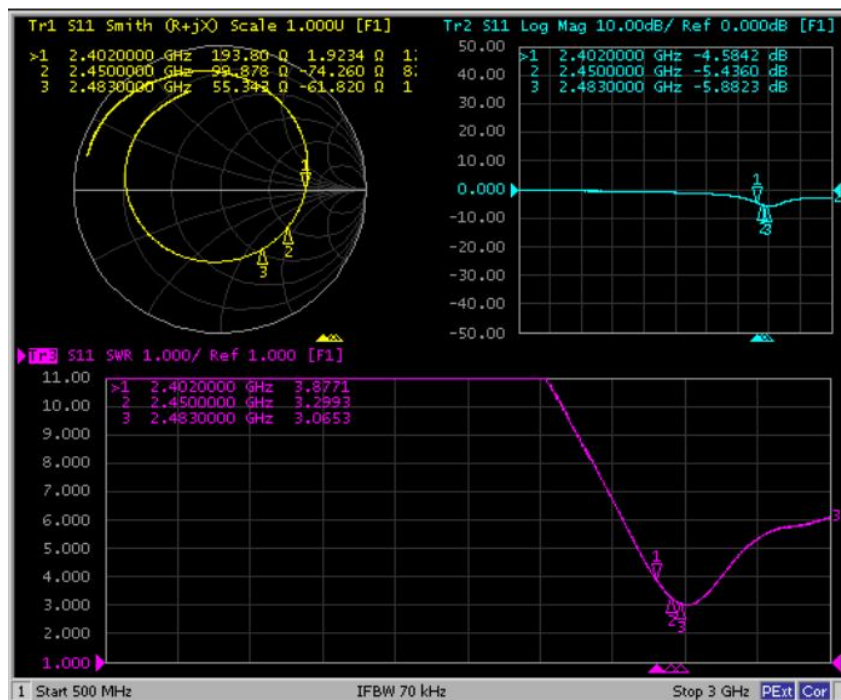
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无源效率&增益 Passive efficiency&gain:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	7.5	-11.25	-8.92
2410	7.47	-11.27	-8.81
2420	7.95	-11	-8.53
2430	8.25	-10.84	-8.45
2440	8.03	-10.95	-8.27
2450	7.97	-10.98	-7.71
2460	7.97	-10.99	-7.27
2470	7.82	-11.07	-7.45
2480	8.56	-10.68	-6.76
2490	8.56	-10.67	-6.7
2500	8.93	-10.49	-6.72

4、VSWR 参数图 VSWR parameter diagram



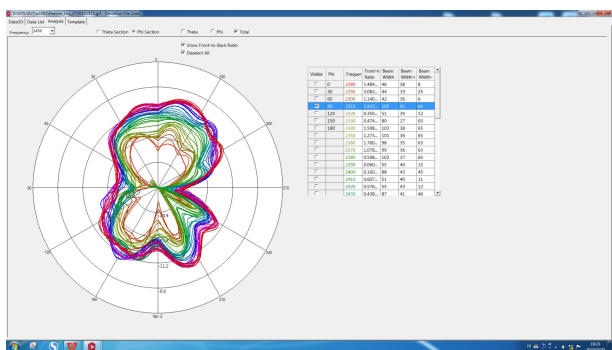
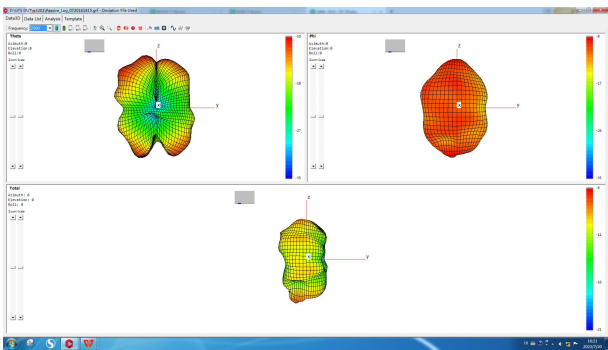
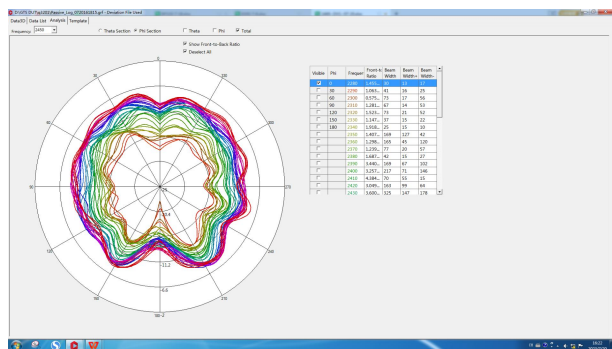
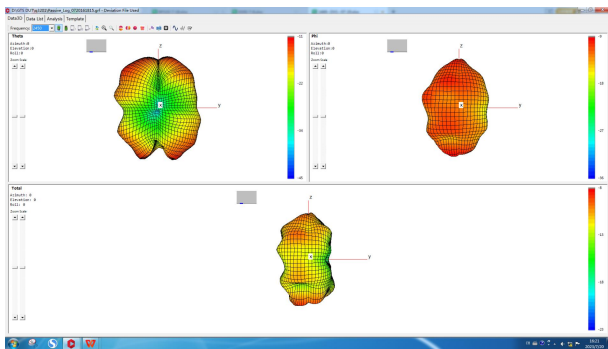
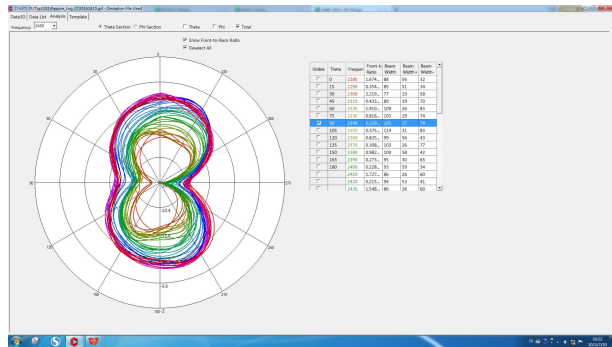
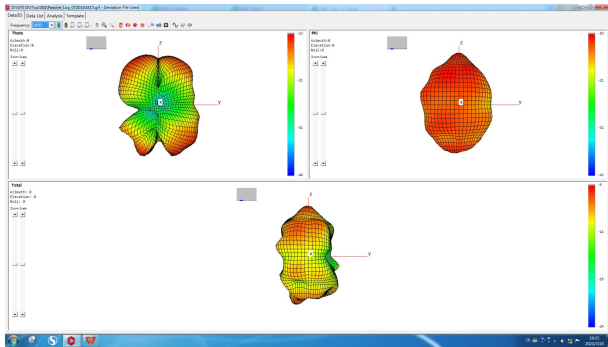
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5、无源场型图

Passive field pattern diagram

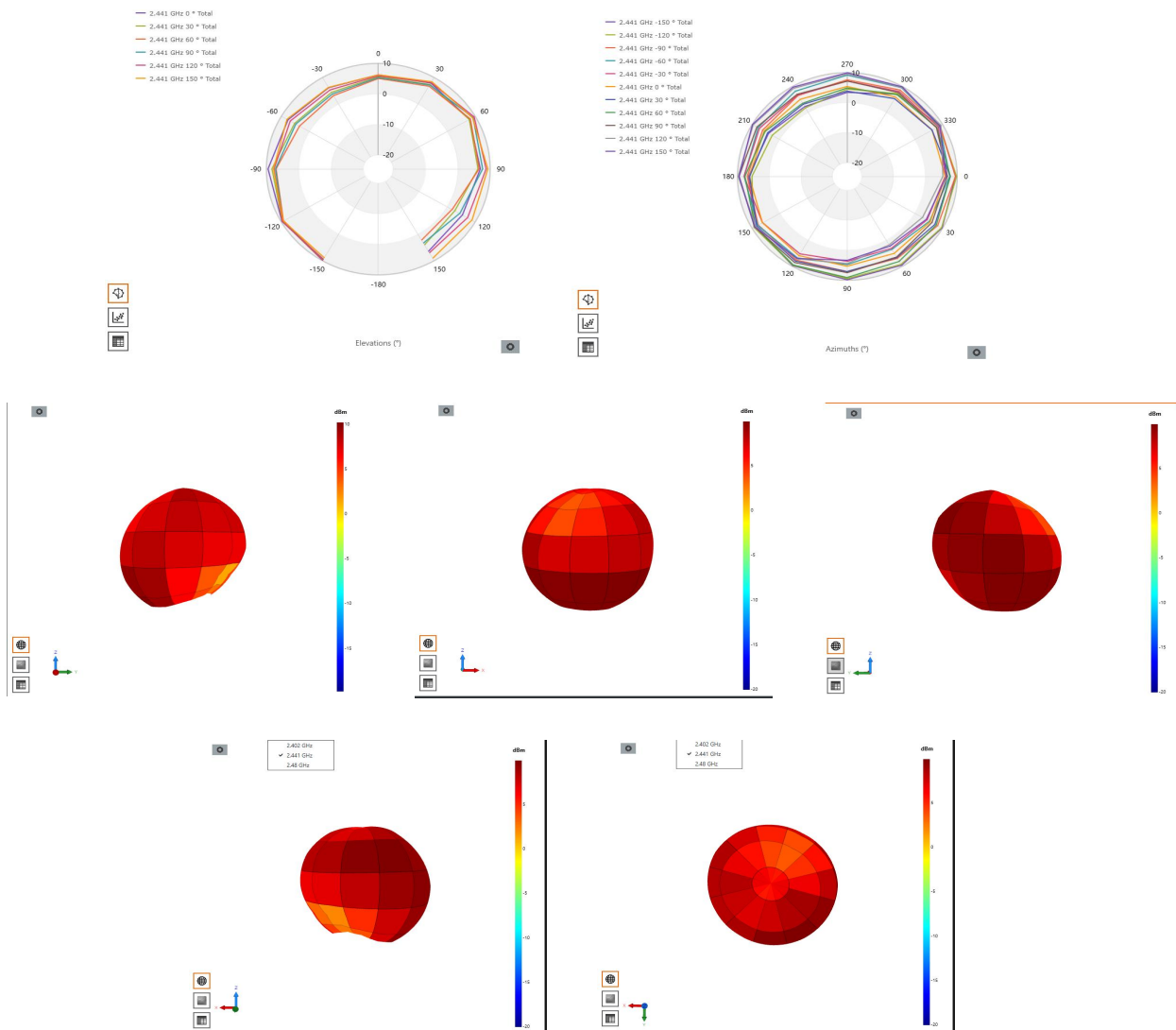


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6、有源场型图

Active field pattern diagram



7、结论 conclusion

此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!

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1			2		3		4		5		6																																		
Third perspective							0~10	10~30	30~50	50~	Angle	○																																	
Unit	mm	Scale	1:1				A 0.05	0.10	0.15	0.20	1°	0.02																																	
											◎	⊥																																	
											0.02	0.03																																	
A								A																																					
B											B																																		
C				1. “*”为重点尺寸 ;“*” is the key size; 2. 未标注尺寸请依右上公差表; Please refer to the tolerance table on the upper right if the dimensions are not marked; 3. 镀镍4-7um 铜层12-16um; Nickel plating 4-7um copper layer 12-16um; 4. 不能有溢镀, 镀层脱落, 电镀液残留, 断线, 短路 阻值≤1Ω There can be no overflow plating, coating off, plating solution residue, wire break, short circuit resistance ≤1Ω 5. 镀层需要过百格测试 Coating needs to be tested over 100 cells 6. Pb、Hg、Cr+6、PBBs、PBDEs各项小于500PPM, Cd小于50PPM。 6. Pb, Hg, Cr+6, PBBs, PBDEs are less than 500PPM, Cd is less than 50PPM.				<table><tr><td>2</td><td>Bluetooth antenna</td><td>Radium engraving plating Ni:4-7UM,CU:12-16UM</td><td>Silver</td><td></td></tr><tr><td>1</td><td>Shell (guest supply)</td><td>1414T</td><td>Transparent</td><td></td></tr><tr><td>Serial number</td><td>Part name</td><td>Material</td><td>Colour</td><td>Remark</td></tr></table>				2	Bluetooth antenna	Radium engraving plating Ni:4-7UM,CU:12-16UM	Silver		1	Shell (guest supply)	1414T	Transparent		Serial number	Part name	Material	Colour	Remark	C																		
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D		Shenzhen Topant Technology Co., Ltd. <table><tr><td>Machine type</td><td>BTH-1469-L</td><td>Product color</td><td>silvery</td><td>Date</td><td>2023-9-14</td></tr><tr><td>Item coding</td><td>CT-H1469-040</td><td>Die surface treatment</td><td></td><td>Structural design</td><td></td></tr><tr><td>Part coding</td><td>BT antenna assembly</td><td colspan="2" rowspan="5"></td><td>Radio frequency design</td><td>胡鹏</td></tr><tr><td>Part name</td><td>2T-H1469-040</td><td>Examine</td><td>周康</td></tr><tr><td>Material</td><td>1414T+LAP</td><td>Give permission to</td><td>张磊</td></tr><tr><td>Save path</td><td colspan="3" rowspan="2"></td><td>Current version</td><td>A</td></tr></table>										Machine type	BTH-1469-L	Product color	silvery	Date	2023-9-14	Item coding	CT-H1469-040	Die surface treatment		Structural design		Part coding	BT antenna assembly			Radio frequency design	胡鹏	Part name	2T-H1469-040	Examine	周康	Material	1414T+LAP	Give permission to	张磊	Save path				Current version	A	D	
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