

Hytera

OWNER'S MANUAL

使用说明书

DIGITAL WALL-MOUNTED REPEATER

数字墙挂式中转台

A decorative graphic at the bottom of the page consisting of overlapping, curved, and intersecting blue lines that create a complex, geometric pattern. The lines vary in shades of blue, from light to dark, and are arranged in a way that suggests depth and movement, resembling a stylized landscape or a network diagram.

The Hytera logo is displayed in a light gray, sans-serif font on a dark gray rectangular background.

Preface

Thanks for your favor in our product. To derive optimum performance from the product, please read this manual and the Safety Information Booklet carefully before use.

This manual is applicable to the following product:
RD622i Digital Wall-mounted Repeater

Instructional Icons



Caution: Indicates situations that could cause damage to your product or bodily injury.



Note: Indicates tips that can help you make better use of your product.

Term Explanation

Voltage Standing Wave Ratio (VSWR)

Voltage Standing Wave Ratio (VSWR) is a value that measures how well a load is impedance-matched to a source.

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U.S. Patent No: #6,912,495 B2, #6,199,037 B1, #5,870,405, #5,826,222, #5,754,974, #5,701,390, #5,715,365, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084 and #5,195,166.

Disclaimer

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We do not guarantee, for any particular purpose, the accuracy, validity, timeliness, legitimacy or completeness of the Third Party products and contents involved in this manual.

If you have any suggestions or would like to learn more details, please visit our website at: <http://www.hytera.com>.

RF Radiation Information

This product must be restricted to operations in an Occupational/Controlled RF exposure Environments. Users must be fully aware of the hazards of the exposure and able to exercise control over their RF exposure to qualify for the higher exposure limits.

RF Radiation Profile

Radio Frequency (RF) is a frequency of electromagnetic radiation in the range at which radio signals are transmitted. RF technology is widely used in communication, medicine, food processing and other fields. It may generate radiation during use.

RF Radiation Safety

In order to ensure user health, experts from relevant industries including science, engineering, medicine and health work with international organizations to develop standards for safe exposure to RF radiation. These standards consist of:

- United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 2 sub-part J;
- American National Standards Institute (ANSI)/ Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992;
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999;
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998.

FCC Regulations

Federal Communication Commission (FCC) requires that all radio communication products should meet the requirements set forth in the above standards before they can be marketed in the U.S, and the manufacturer shall post a RF label on the product to inform users of operational instructions, so as to enhance their occupational health against exposure to RF energy.

EU Regulatory Conformance

As certified by the qualified laboratory, the product is in compliance with the essential requirements and other relevant provisions of the Directive 1999/5/EC. Please note that the above information is applicable to EU countries only.

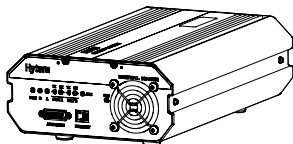
Contents

Items in the Package	2
Product Overview	2
Parts	2
Front Panel	2
Rear Panel	2
Before Use	3
Instructions	3
Wall-mount Bracket Installation (Optional)	3
Status Indication	3
Alarm Information	4
Troubleshooting	4
Care and Cleaning	5
Optional Accessories	5

Items in the Package

Please unpack carefully and check that all items listed below are received. If any item is missing or damaged, please contact your dealer.

1 Repeater



2 AC Power Cord

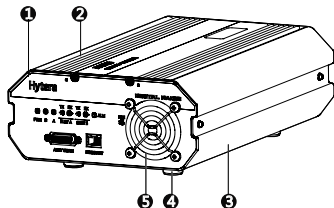


3 Documentation Kit



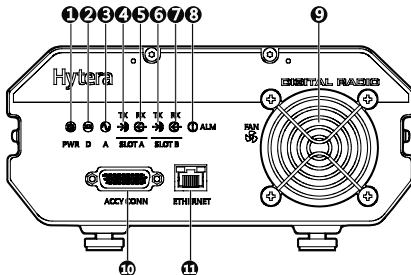
Product Overview

Parts



No.	Part Name	No.	Part Name
1	Front Panel	4	Foot Pad
2	Upper Cover	5	Fan Mesh Enclosure
3	Chassis	/	/

Front Panel

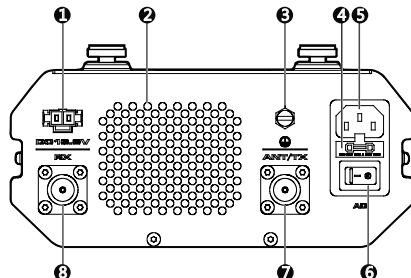


No.	Part Name	No.	Part Name
1	Power LED Indicator	7	Slot B RX LED Indicator
2	Digital Mode LED Indicator	8	Alarm LED Indicator

No.	Part Name	No.	Part Name
3	Analog Mode LED Indicator	9	Fan Inlet
4	Slot A TX LED Indicator	10	Accessory Connector
5	Slot A RX LED Indicator	11	Ethernet Interface
6	Slot B TX LED Indicator	/	/

Note: If the repeater is manufactured without internal duplexer, then part 8 will be an external duplexer RX port; if it is manufactured with internal duplexer, then there will be no connection inside part 8.

Rear Panel



No.	Part Name	No.	Part Name
1	DC Power Inlet	5	AC Power Inlet
2	Fan Outlet	6	AC Power Switch
3	Ground Terminal	7	ANT/TX Antenna Connector (N-type Female)
4	Fuse Box	8	RX Antenna Connector (N-type Female)

Before Use

Instructions

To ensure optimum performance and reliability of the repeater, please read the following instructions carefully.

Operation Environment

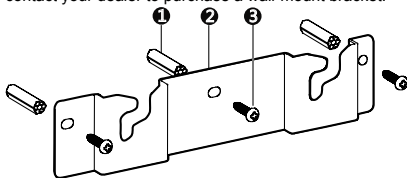
The repeater must be installed in a dry and well-ventilated place with ambient temperature of -30°C to $+60^{\circ}\text{C}$ and relative humidity of not more than 95%.

Voltage Check

Check whether the input voltage is within the operating voltage of the repeater (DC power supply: $13.6\text{V} \pm 15\%$; AC power supply: 90V to 264V).

Wall-mount Bracket Installation (Optional)

If you need to install the repeater on the wall, please contact your dealer to purchase a wall-mount bracket.



No.	Part Name	No.	Part Name
1	Plastic Wall Anchor	3	Self-tapping Screw
2	Wall-mount Bracket	/	/

Installation Tools

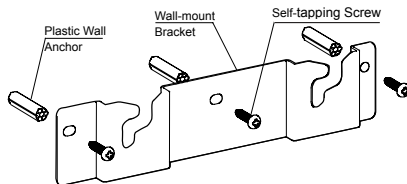
An electric drill and a T10 torx screwdriver.

Installation Procedures

A. Install the wall-mount bracket.

1. Drill three holes into the wall, with each hole aligned with those of the wall-mount bracket.
2. Put the plastic wall anchor into the drilled holes. Skip this step if the wall is not a concrete wall.

3



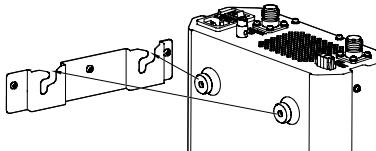
3. Use three ST4X16 self-tapping screws to fasten the bracket on the wall.



Note: Make sure the wall can support the repeater's weight before drilling.

B. Install the repeater on the bracket.

1. Align the screws on the upper side of the repeater with the notches of the bracket and mount the repeater onto the bracket, as shown in the figure below;
2. Move the repeater side to side slightly to ensure the screws fit into the bottom of the notch.



Product Check

Check whether the repeater works properly by observing the seven LED indicators in the front panel after the repeater is powered on via the **AC Power Switch**.

Status Indication

The LED indicators on the front panel indicate the following repeating status:

LED Indicator Name	LED Indication	Repeater Status
Digital Mode LED Indicator	Blue	The repeater is operating in digital mode.
Analog Mode LED Indicator	Yellow	The repeater is operating in analog mode.
Slot A TX LED Indicator	Red	<ul style="list-style-type: none">• Analog mode: The repeater is transmitting.• Digital mode: The repeater is transmitting in Slot A.
Slot A RX LED Indicator	Green	<ul style="list-style-type: none">• Analog mode: The repeater is receiving.• Digital mode: The repeater is receiving in Slot A.
Slot B TX LED Indicator	Red	Digital mode: The repeater is transmitting in Slot B.
Slot B RX LED Indicator	Green	Digital Mode: The repeater is receiving in Slot B.
Alarm LED Indicator	Red	Alarm occurs. The alarm LED indicator will remain red until all alarms are eliminated.

Alarm Information

The repeater will have real-time detection of its operation status automatically. When it is operating abnormally, the alarm LED indicator on the front panel will glow red until all alarms are eliminated.

When an alarm event occurs, you can diagnose and solve the problem via the RDAC application provided by us or contact your local dealer for technical support.

Alarm types and causes are as listed below:

Alarm Type	Alarm Cause
Abnormal External Power	High Voltage: The input voltage is higher than $15.8V \pm 0.2V$. Low Voltage: The input voltage is lower than $10.8V \pm 0.2V$.
High Temperature	Temperature sensor detects the temperature above $85^{\circ}C$.
Abnormal VSWR	VSWR > 3:1. Over-high VSWR will damage the PA module or even disable it.
TX Unlock	TX PLL is unlocked, and the repeater stops transmitting and repeating.
RX Unlock	RX PLL is unlocked, and the repeater stops receiving and repeating.

Troubleshooting

Phenomena	Analysis	Solution
Power-on Failure.	The power cord may be disconnected or not securely connected to the outlet.	Properly connect the power cord and ensure secure connection.
	The fuse in the power cord is damaged.	Check whether the DC power fuse is damaged. If it is damaged, replace it with a new one.
	DC power supply voltage is not within the operating voltage of the repeater.	Check whether the DC power supply voltage is within the operating voltage of the repeater ($13.6V \pm 15\%$). If not, adjust it to proper range.
The radio is unable to communicate with other members.	TX/RX frequency of the repeater is inconsistent with that of portable/mobile radios.	Check if the frequencies are consistent. Reset the frequencies when necessary.
	The repeater failed to repeat useful signal due to strong interference signals.	If you cannot remove or bypass the interference source, change to operate at other frequencies.
	The radio is out of the coverage of the repeater.	Move into the coverage of the repeater.
There' s RX indication on the radios, but members cannot communicate with each other.	Radio ID does not match that of other members.	Sets the same ID with other members.
	The CTCSS/CDCSSs of the radios are not consistent.	Check whether the CTCSS/CDCSSs are consistent. Reset the CTCSS/CDCSSs when necessary.
Short communication distance and poor voice quality	Signal loss due to connecting cable damage.	Check whether the damage is serious. Replace the cable when necessary.
	The antenna and cable are in loose connection or disconnected.	Secure the connection. Replace the connector when necessary.
	Internal damage of the cable. The duplexer (if installed) may be adjusted improperly.	Replace the cable. Contact Hytera or the local dealer to re-adjust the duplexer.

If the above solutions cannot fix the problems, or you have other questions, please contact Hytera or the dealer for more technical support.

Care and Cleaning

To guarantee optimal performance as well as a long service life of the product, please follow the tips below.

Product Care

- Keep the product in good environmental conditions to ensure reliability.
- Do not place other equipment on top of the product to ensure optimal heat dissipation.
- Do not pierce or scrape the product.
- Keep the product far away from substances that can corrode the circuit.
- Do not place the product in corrosive agents, solutions or water.

Product Cleaning



Caution: Be sure to turn off the product before cleaning.

- Remove the dust and fine particles on the product surface with a clean and dry lint-free cloth or a brush regularly.
- Use a non-woven fabric with neutral cleanser to clean the connectors. Do not use chemical preparations such as stain removers, alcohol, sprays or oil preparations. Make sure the product is completely dry before use.

Optional Accessories

The following items are the main optional accessories for the repeater. For more information of other accessories, please consult your local dealer.



Caution: Use the accessories specified by Hytera only. If not, the Company shall not be liable for any loss or damage arising out of use of unauthorized accessories.

Accessory Name	Accessory Model
Wall-mount Bracket	BRK21
Duplexer Kit	<ul style="list-style-type: none">• DK08 (400 - 470MHz)• DK09 (136 - 174MHz)
Duplexer Mounting Bracket	BRK22

Hytera

致用户

非常感谢您对我们产品的青睐！为了确保您最大限度地享用本产品所带来的各项便利，请于使用前仔细阅读本手册和《安全信息手册》。

本手册适用于以下机型：
RD620 壁挂式中转台

图标说明



注意：表示可能会导致产品损坏或人身伤害的事项。



备注：表示有助于您更好地了解和使用本产品的事项。

术语说明

驻波比

驻波比是一个数值，用来表示天线和电波发射台是否匹配。

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美国专利号：#6,912,495 B2, #6,199,037 B1, #5,870,405, #5,826,222, #5,754,974, #5,701,390, #5,715,365, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084 和 #5,195,166。

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射频辐射信息

本产品仅限于能够满足射频能量辐射要求的职业应用。使用者必须清楚了解射频辐射危害并可采取相应措施，满足射频辐射限定要求。

射频辐射常识

射频指可以辐射到空间的电磁频率，是通讯、医疗、食品加工等领域广泛使用的一种技术，在使用过程中会产生一定的射频辐射。

射频辐射安全

为了确保用户的身心健康，来自科学、工程、医药、健康和工业的专家们与相关组织共同研究制定了射频辐射标准和准则，如下所示：

- 美国联邦通信委员会联邦政府法规汇编第47卷第2部分J子部分。
- 美国国家标准协会（ANSI）/电气和电子工程师协会（IEEE）标准C95.1-1992版。
- 电气和电子工程师协会标准C95.1-1999版。
- 国际非电离辐射防护委员会（ICNIRP）于1998年颁布的标准。

美国联邦通信委员会监管要求

按照美国联邦通信委员会的监管要求，本产品必须符合美国联邦通信委员会射频辐射限制规定，否则不能在美国市场上销售。并要求制造商可通过在产品上张贴标签的方式，告知用户应注意的事项，提高用户的防辐射意识。

欧盟指令符合性声明

本产品经独立第三方机构认证，符合欧盟指令“1999/5/EC”中的相关要求。请注意，本声明仅适合欧盟国家。

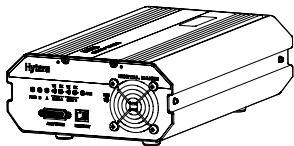
目录

包装清单	2
熟悉产品	2
整机组件	2
前面板	2
后面板	2
用前准备	2
注意事项	2
安装挂墙支架(可选)	3
中转状态	3
告警信息	3
故障处理	4
保养与清洁	4
选购配件	5
保修范围与期限	5

包装清单

包装盒内含有以下物件。如有任何物件丢失或损坏，请与您所购产品的经销商联系。

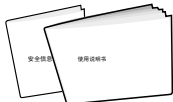
1 主机



2 电源适配器

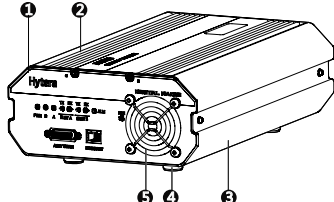


3 资料套件



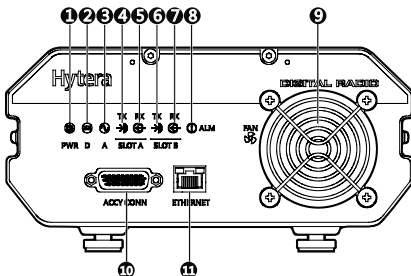
熟悉产品

整机组件



序号	部件名称	序号	部件名称
1	前面板	4	脚垫
2	上盖	5	风扇网罩
3	底壳	/	/

前面板

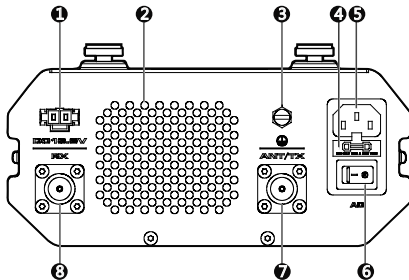


序号	部件名称	序号	部件名称
1	电源指示灯	7	时隙B接收状态指示灯
2	数字模式指示灯	8	告警状态指示灯
3	模拟模式指示灯	9	风扇进风口
4	时隙A发射状态指示灯	10	D-USB数据接口
5	时隙A接收状态指示灯	11	RJ45数据接口
6	时隙B发射状态指示灯	/	/



备注：如果本产品出厂时无内置双工器，则上图8处为外置双工器RX接口。如果本产品出厂时内置双工器，则上图8处内部为NC状态。

后面板



序号	部件名称	序号	部件名称
1	DC电源输入口	5	AC电源输入口
2	散热出风口	6	AC电源开关
3	接地端子	7	ANT/TX天线接口（N型母头）
4	熔断保险盒	8	RX天线接口（N型母头）

使用前准备

注意事项

为确保本产品具备最佳的工作性能和可靠性，请务必仔细阅读以下信息。

运行环境

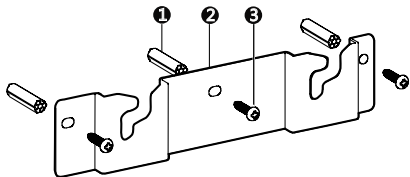
本产品必须在“环境温度为-30℃~+60℃、相对湿度不超过95%且干燥通风”的环境下使用。

电压检查

使用前，请检查输入电压是否在本产品的工作电压范围之内（直流供电电压：13.6V±15%，交流供电电压：90V~264V）。

安装挂墙支架（可选）

使用本产品时，如果需要挂墙使用，请购买挂墙支架。如果没有，请与您所购产品的经销商联系。



序号	部件名称	序号	部件名称
1	膨胀胶塞	3	自攻螺钉
2	挂墙支架	/	/

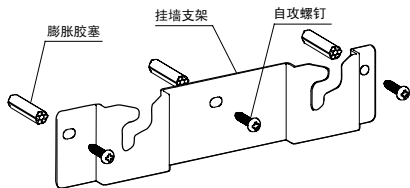
安装工具

安装挂墙支架需要使用的工具包括：电钻和十字螺丝批。

安装步骤

A. 安装挂墙支架。

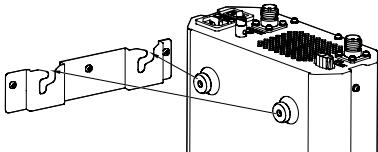
1. 钻孔，按照挂墙支架螺钉孔位置在墙面上钻3个螺钉孔；
2. 在钻好的螺钉孔内放入膨胀胶塞，如果墙面为非混凝土墙面，此步可忽略；
3. 使用3颗ST4X16的自攻螺钉将挂墙支架固定到墙面上。



备注：钻孔前，请确认墙面有足够的支撑强度可以支撑本产品。

B. 安装主机到挂墙支架上。

1. 将主机上侧的2个挂墙螺钉位置对正挂墙支架的缺口，然后将主机挂到支架上；
2. 挂好后轻轻晃动主机，以确保其已经完全落入支架的Z字形凹槽底部。



产品检查

打开【AC电源开关】开机，通过观察前面板上的7个LED指示灯检查本产品是否运行正常。

中转状态

本产品前面板LED指示灯用于指示本产品的中转状态，如下表：

指示灯名称	指示状态	中转台状态
数字模式指示灯	蓝色	在数字模式下工作
模拟模式指示灯	黄色	在模拟模式下工作
时隙A发射状态指示灯	红色	<ul style="list-style-type: none">● 模拟模式：正在发射● 数字模式：时隙A正在发射
时隙A接收状态指示灯	绿色	<ul style="list-style-type: none">● 模拟模式：正在接收● 数字模式：时隙A正在接收
时隙B发射状态指示灯	红色	数字模式的时隙B正在发射
时隙B接收状态指示灯	绿色	数字模式的时隙B正在接收
告警状态指示灯	红色	告警提示，所有告警消除后才熄灭

告警信息

本产品可自动、实时检测工作状态。当本产品工作出现异常时，前面板的告警状态指示灯亮红灯，所有告警消除后告警状态指示灯才熄灭。

出现告警时，可使用我司RDAC软件进行诊断与处理，或者联系您所在地的经销商寻求协助。

告警类型及产生告警的原因如下表：

告警类型	告警原因
外部电源异常	高压告警：输入的电压高于 $15.8V \pm 0.2V$ 。 低压告警：输入的电压低于 $10.8V \pm 0.2V$ 。
高温	温度传感器探测点的温度高于 $85^{\circ}C$ 。
驻波比异常	驻波比大于3:1。 驻波比过大损坏功放模块，严重情况下会导致功放模块无法正常工作。
发射失锁	发射锁相环失锁，本产品停止所有的发射和中转工作。
接收失锁	接收锁相环失锁，本产品停止所有的接收和中转工作。

故障处理

故障描述	原因分析	解决方法
无法开机	电源线未连接或者与插座接触太松	正确连接电源线、并保证接触良好
	电源线内保险丝损坏	检查电源线内直流保险丝是否烧毁, 如果烧毁, 请替换新保险丝
	直流供电电压不符合要求	检查直流供电电压是否在要求范围之内 ($13.6V \pm 15\%$), 如果不在要求的范围内, 请调整直流供电电压
无法与组内其他成员通讯	本产品的收发频点与终端的收发频点不对应	检查频点是否对应, 必要时请重新设置频率
	工作频点受到强信号干扰, 无法中转有用信号	查找干扰源, 如果无法关闭或远离干扰源, 请申请并更换信道频点
	组员已经离开本产品的信号覆盖范围	确认并回到本产品的信号覆盖范围内通话
终端有接收指示, 但系统内组员之间无法通话	终端ID号与组内其他成员不同	设置与组内其他成员相同的ID号
	终端CTCSS/CDCSS不对应	检查CTCSS/CDCSS是否对应, 必要时重新设置
通话距离短, 语音不清晰	连接电缆已损坏, 信号能量泄露	检查损坏程度, 如果有必要, 请替换新的电缆
	天线端口与电缆接头处松动或脱落	检查接头处, 将接头拧紧, 如果有必要, 请替换新的接头
	电缆内部损坏	替换新的电缆
	双工器未完全调节好 (如果已安装了双工器)	联系厂家或经销商重新调整双工器

如上述方法仍未解决您的问题, 或者您遇到一些其它的故障, 请联系当地经销商或我司以获取更多的技术支持。

保养与清洁

为了保证本产品发挥其良好性能, 并延长其使用寿命, 请熟悉以下内容, 以便更好地对本产品进行日常保养与清洁。

保养

- 请保证本产品处于通风条件较好、易散热的位置, 以便各部件正常地工作。
- 请勿将无关物品摆放在本产品上盖或散热器上, 以保证其有效地散热。
- 请勿用硬物穿刺或刮花本产品。
- 请勿将本产品存放于含有腐蚀电子电路物质的环境。
- 请勿将本产品浸泡于各种腐蚀性剂、溶液或水中。

清洁



注意: 在您进行清洁之前, 请关闭本产品的电源。

- 请定期使用洁净干燥的无绒布或毛刷拭去本产品各部件附着的粉尘, 以保持其清洁并防止接触不良。
- 如果本产品的按键、控制旋钮、显示屏和接口变脏, 可以使用沾有中性洗涤剂的无纺布对其进行清洁。切勿用去污剂、酒精、喷雾剂或石油制剂等强腐蚀性化学药剂进行清洁。清洁之后, 务必保证本产品彻底干燥, 否则请勿使用。

选购配件

本产品主要的选购附件已包含在如下列表中，如需更多附件信息，请咨询您当地的经销商或拨打我司服务热线400-830-7020。



注意：请使用我司指定的配件。若擅自使用未经许可的配件，则由此所导致的一切后果，由用户自行负责。

配件名称	配件型号
挂墙支架	BRK21
双工器组件	DK08 (400~470MHz) DK09 (136~174MHz)
双工器安装支架	BRK22

保修范围与期限

我司承诺：凡我司生产的产品，自购买之日起，在正常使用、操作与维护条件下，出现材料或制造工艺方面的缺陷，可享受以下规定的保修服务。

主机	24个月
标配附件	6个月

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