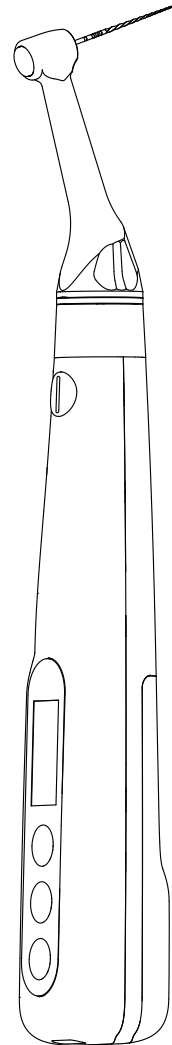


ZR TOUCH



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ZR TOUCH

ENDO MOTOR

INSTRUCTION MANUAL

Please read the instruction manual
before operating.



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For model ZR Touch

CONGRATULATIONS!

Thank you for your purchase.
For optimum safety and performance, read this manual carefully and pay close attention to warnings and precautions before using the instrument.

Please keep this manual in a convenient place for quick and easy reference.

Hot Line: +86 0755-28540953

E-mail: sales@dental-perfect.com

ShenzhenPerfect Medical Instruments Co., Ltd.

Room 103, Building 3, No. 2, Weiqun Road, 4th Community, Henggang Street, Longgang District, Shenzhen

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1.Equipment Introduction

The device is specially designed for dentists and used to drive root canal instruments to rotate and reciprocate.

It is clinically used in root canal shaping and cleaning in root canal treatment.

1.1 Scope of application

This equipment must be used in hospitals or dental clinic by qualified dentists.

2.Contraindications

- Disabled by doctors with pacemakers.
- Patients with pacemakers (or other electrical equipment) and are warned not to use small appliances (such as electric shavers, hair dryers, etc.) are disabled.
- Prohibited for patients with hemophilia.
- Use with caution in patients with heart disease, pregnant women and young children.

3.Warning

- Please read the instruction manual carefully before using this device for the first time.
- This equipment must be used in hospitals or dental clinic by qualified dentists.
- The patient shall not be an intended operator.
- This device can only be used with its accompanying accessories, do not use any other power adapters, contra angle, lithium batteries, etc..
- There is an unacceptable risk of improper replacement lithium batteries.please use the lithium batteries provided by us and replace it according to the correct steps in the instructions.
- Do not disassemble or repair the equipment by yourself. Any disassembly or repair by yourself may violate safety regulations and cause injury to the patient. Any self-dismantling and repair will not be guaranteed by any promise.
- Do not remove the contra angle and press the push button before the motor stops rotating,otherwise the contra angle may be damaged.
- Do not remove the file before the motor stops rotating, otherwise the operator may be injured.
- Before starting the motor,make sure that the file is in place and locked.
- Please set the motor output speed and torque according to the parameters recommended by the file manufacturer.

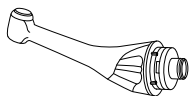
- Using the reciprocating mode for a long time may cause the motor handpiece to overheat. At this time, it should be left to cool down to reuse. If the motor handpiece frequently overheats, please contact your local dealer.
- Do not put the equipment near flammable materials. Do not operate the device in the presence of a flammable anesthetic mixture of air, oxygen or nitrogen oxides.
- Portable and mobile RF communication equipment may affect the performance of this equipment. Avoid strong electromagnetic interference when in use, such as close to mobile phones, microwave ovens, etc.
- Do not place this equipment near a heat source. The device must be operated and stored in a reliable environment.
- The equipment is usually operated at +10°C to +40°C, relative air humidity 30%-75%, and atmospheric pressure (70~106) kPa.
- This equipment should be sterilized and disinfected for the first time and after the patient is used to avoid cross-infection.
- The motor handpiece cannot be sterilized by high temperature and high pressure, only neutral disinfectant or alcohol can be used to wipe the surface.

4.Product introduction

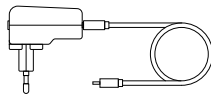
1.Motor handpiece



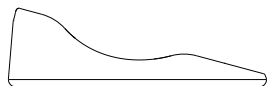
2.1:1 Contra angle



3.Adapter



4.Base



5.Oil injectors



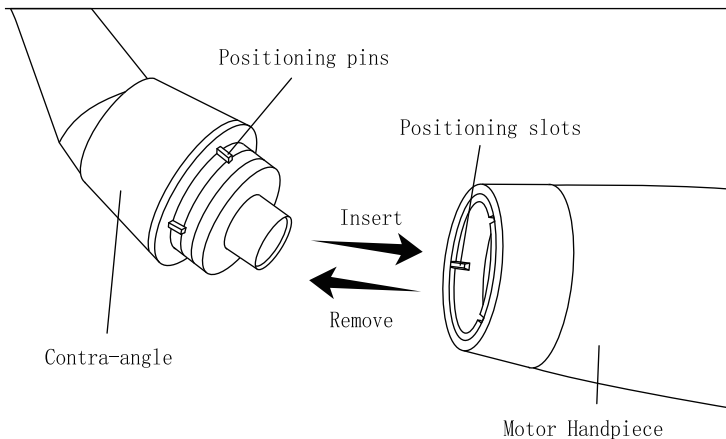
Manufacturers	ShenzhenPerfect Medical Instruments Co.,Ltd.
Model	ZR Touch
Form factor	184mm*104mm*75mm
Weight	112g± 1g(with contra angle)
Contra angle	transmission ratio 1:1
Power supply	3.7V/800mAh lithium battery
The adapter output	5V DC, 2A
The adapter input	AC100-240-50/60Hz
Electrical safety classification	Class II devices with internal power
Applied part	Type B: Contra angle Application part contact time:1 to 10 minutes
Apply part of the material	Contra angle: copper, stainless steel
Speed range	150-1000rpm
Torque range	0.6-5.0Ncm
Operating conditions	Temperature: +10°C to +40°C Humidity: 30% - 75% Pressure: 70kPa - 106kPa
Storage conditions	Temperature: -10°C to +50°C Humidity: 10% - 85% Pressure: 70kPa - 106kPa

5. Device installation

5.1 Installation & removal of contra angle

5.1.1 Installation

The contra - angle can be connected at 3 adjustable head positions , Align the positioning pins of the contra - angle with the positioning slots of the contra - angle and insert the head until it clicks.



5.1.2 Removal

When removing the contra - angle , pull it straight out .



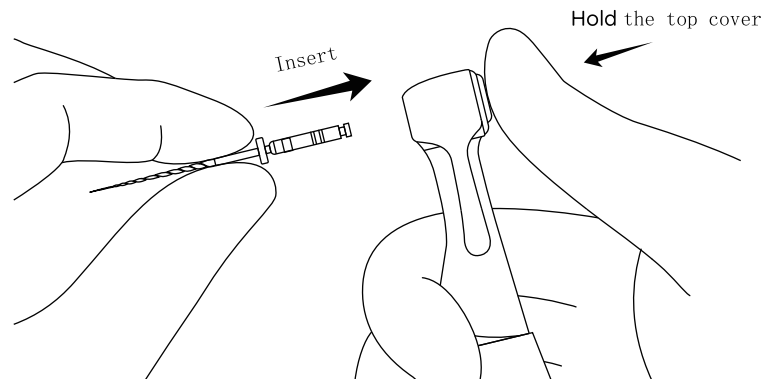
Warning

When install or remove the contra angle , make sure to turn off the device .

5.2 Inserting and Removing the File

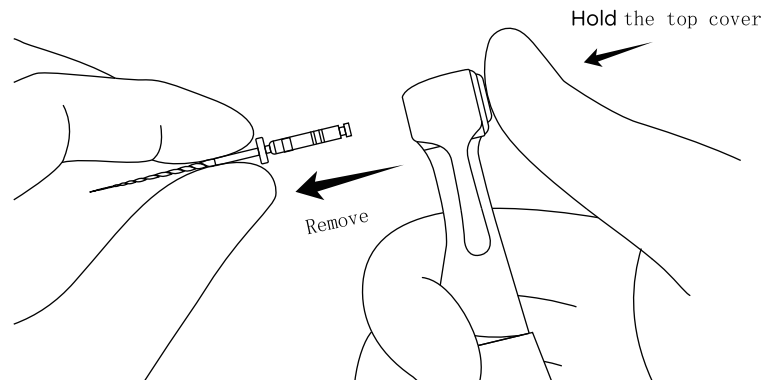
5.2.1 File insertion

Press the top cover of the contra - angle and insert the file until the file tail is loaded into the inner lock slot of the contra - angle .Release the contra - angle top cover and gently pull the file out to confirm that the file is locked.



5.2.2 File removal

Press the top cover of the contra-angle , and at the same time pull out the file at an angle perpendicular to the drive shaft of the hand piece.



Warning

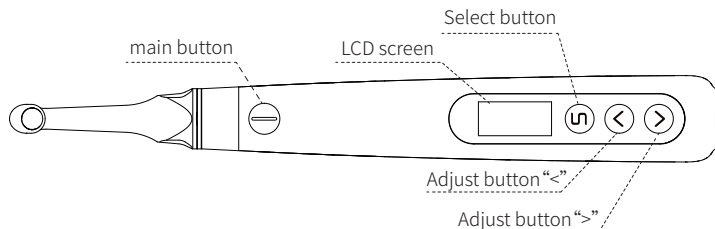
When installing and removing files, the motor needs to be turned off to prevent damage to the operator.

When installing and removing the file, press the top cover of the hand piece until the installation or removal action is completed. Otherwise, the locking needle part inside the contra angle will be damaged.

Please use file that meets ISO standards.(ISO standards; $\Phi 2.334-2.350\text{mm}$)

6.Equipment function and use

6.1 Button definition and settings



6.2 Power on and off

Short press the main key “⊖” to turn on the device.
Press the key “⊕”, then press the main key “⊖” to turn off the device.
The device will automatically shut down after 5 minutes without any operation.

6.3 Motor start and stop

When the device is on, select the appropriate mode, press the main key “⊖” to start the motor, press the main button “⊖” again to stop the motor.

6.4 Terms and definitions


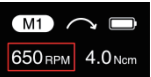
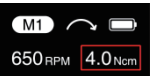
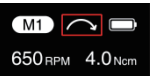
When the device is on, select the appropriate mode, press the main key “ ” to start the motor, press the main button “ ” again to stop the motor.

RPM	Rotation speed of file
Ncm	Torque setting value
	Forward clockwise rotation
	Reserve Anticlockwise rotation
	Reciprocating rotation

6.5 Mode introduction

Serial number	Mode	Display content	Mode function
M1	Continuous rotation		Rotate in one direction, can select clockwise and counterclockwise directions. Speed range: 150-1000rpm, step value 50rpm. Torque range: 0.6-5.0N·cm, step value: 0.1N·cm
M2	Continuous rotation		Rotate in one direction, can select clockwise and counterclockwise directions. Speed range: 150-1000rpm, step value 50rpm. Torque range: 0.6-5.0N·cm, step value: 0.1N·cm
M3	Continuous rotation		Rotate in one direction, can select clockwise and counterclockwise directions. Speed range: 150-1000rpm, step value 50rpm. Torque range: 0.6-5.0N·cm, step value: 0.1N·cm
M4	Continuous rotation		Rotate in one direction, can select clockwise and counterclockwise directions. Speed range: 150-1000rpm, step value 50rpm. Torque range: 0.6-5.0N·cm, step value: 0.1N·cm
M5	Continuous rotation		Rotate in one direction, can select clockwise and counterclockwise directions. Speed range: 150-1000rpm, step value 50rpm. Torque range: 0.6-5.0N·cm, step value: 0.1N·cm
M6	Reciprocating rotation Rec		Reciprocating rotation Rec Speed range: 300rpm Angle range: 150° forward, 30° reversal 170° forward, 50° reversal 50° forward, 170° reversal
M7	Reciprocating rotation Rec		Reciprocating rotation Rec Speed range: 300rpm Angle range: 150° forward, 30° reversal 170° forward, 50° reversal 50° forward, 170° reversal
M8	Reciprocating rotation Rec		Reciprocating rotation Rec Speed range: 300rpm Angle range: 150° forward, 30° reversal 170° forward, 50° reversal

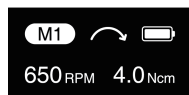
6.6 Parameter settings

	<p>Mode selection, press adjust key "<">" to select different mode, the device has 8 mode, M1-M8.</p>
	<p>Speed setting, press the selection key "⊙", the speed parameter flashes, and then press the adjustment keys "<" ">" to select the desired speed, and press the "⊖" key to confirm the selection.</p>
	<p>Torque setting, press the selection key "⊙", the torque parameter flashes, and then press the adjustment keys "<" ">" to select the desired torque, and press the "⊖" key to confirm the selection.</p>
	<p>Direction setting, press the selection key "⊙", the direction parameter flashes, and then press the adjustment keys "<" ">" to select the desired direction, and press the "⊖" key to confirm the selection.</p>

6.7 Preset the file program selection

1	<p>For convenience, the device is equipped with different file procedures of 5 manufacturers and 37 models, the speed and torque are set to the manufacturer's recommended range values. press the adjustment key "<">" to select the desired direction to confirm the file program.</p>
2	<p>Select file manufacturer: Long press the selection key "⊙" to enter the file selection interface, and press the adjustment keys "<">" to select a different file manufacturer. This machine includes Perfect, Dentsply, VDW, MicroMega, FKG.</p>
3	<p>Select the directory: Press the selection key "⊙" to select the corresponding file manufacturer, and press the adjustment keys "<" ">" to select different file type programs.</p>
4	<p>Select the file type: press the selection key "⊙" to select the corresponding file type, and press the adjustment keys "<">" to select a different file type program. Press the key "⊖" to confirm the selection.</p>

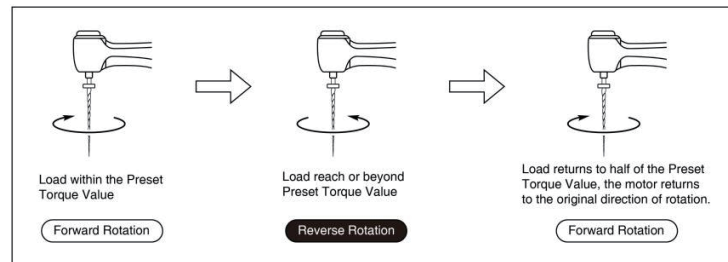
6.8 Motor handpiece function settings



In order to satisfy the left-handed and right-handed operators, the viewing angle of the display screen can be adjusted by 180°. Press the ">" key without releasing it, and then press the main button "⊖", to enter the adjustment interface. Then press the adjustment keys "<">" to select the key ">" to confirm the selection.

6.9 Protective function of automatic reverse

In the M1-M5 mode, the motor rotates in one direction. When the motor load torque reaches the preset value, the motor will automatically reverse; when the motor load returns to half of the preset torque value, the motor returns to the original direction of rotation.

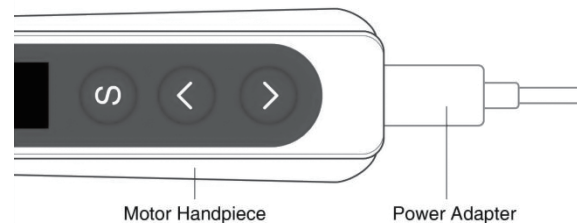


Warning

1. The torque trigger automatic reverse protection function only works in M1~M5 (one-way rotation) modes
2. This function does not take effect in M6, M7, M8 modes.
3. When the power of the device is less than 20%, it is not enough to support the maximum torque of the motor 4Ncm, please charge it in time.

6.10 Device charging

This product has a built-in rechargeable lithium battery. Insert the power adapter into the USB port at the bottom of the handle, and the device will enter the charging state.



After fully charged, the battery icon shows full and in a static state, please unplug the power adapter in time when fully charged.

Warning

Keep away from heat sources when charging.

6.11 Device calibration

6.11.1 Calibration method

Press the "<" button, then the main button to enter the calibration mode.

Warning

Please keep the battery above 50% to calibration.

7. Maintenance

7.1 Battery replacement

To replace the battery, use the lithium battery provided by the original manufacturer. Please contact your local dealer or manufacturer for replacement.

Replacement procedure:

- 1) Ensure that the device is turned off
- 2) Remove the silicone plug of the battery cover with tweezers, and then remove the fixing screws with a screwdriver
- 3) Remove the battery cover and remove the old battery
- 4) Put the new battery into the battery compartment and confirm that the battery is normal when you turn it on.
- 5) Install the battery cover and lock it with screws, and then plug the silicone plug into the screw hole.



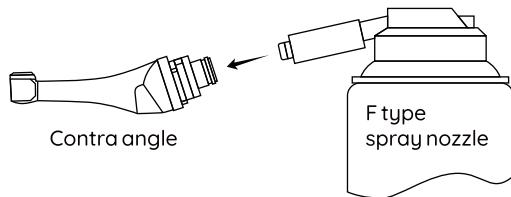
Warning

Do not disassemble parts that are not related to the replacement of the battery.
Do not replace the battery with wet hands, otherwise the battery may short-circuit and damage the device.
Do not use lithium batteries other than the original manufacturer, otherwise the equipment may be damaged.
If the device is not used for a long time, the lithium battery should be removed.

7.1 Battery replacement

To extend the use of the contra angle, it should be lubricated each time it is used or before sterilization.

- 1) Rotate the oiler into the nozzle of the oiler bottle.



- 2) Insert the oil injector into the tail of the contra angle and then fill for 2 to 3 seconds until the oil is flowing out of the contra angle.
- 3) Place the tail of the contra-angle up right for more than 30 minutes and use gravity to drain excess lubricant.



Warning

The motor handpiece can not be filled with oil.



Note

When filling oil, hold the Contra-angle tightly to prevent the Contra-angle from leaving the oil injector due to the oil injection pressure.

8. Troubleshooting

8. Troubleshooting

Fault status	Possible causes	Solution
Motor calibration failed Low battery	Low battery The resistance of the contra angle is too large.	Charge the device to full power. Lubricate the contra angle.
Motor handle gets hot	Excessive use time under load Long reciprocating use time	Stop using, wait until the handle temperature returns to normal
The use time becomes shorter when the battery is fully charged	Battery capacity becomes smaller	Contact your local dealer or manufacturer to replace the battery
OVER LOAD	Over load	Stop the motor, exit the root tube and re-start

If you have not found the necessary information, you may consult the manufacturer via hotline: + 86-755-28540953, E-mail: endoservice@dental-perfect.com or address to the service department.

9. Cleaning, disinfection and sterilization

For the purpose of hygiene and safety, the components must be cleaned, disinfected and sterilized before the first use and after each use to prevent cross-infection.

Wipe disinfection

The device should be cleaned and wiped and disinfected regularly. After use, use 75% medical alcohol to thoroughly wipe the contact surface of it to remove the residual substances or debris on the surface of the device.

Sterilization

The contra angle must be cleaned, disinfected and sterilized for the first use and after each use.

Please seal the contra angle in a sterilized packaging that meets the EN-868-5 standard.

At 134°C, the sterilization time is at least 4 minutes.

At 121°C, the sterilization time is at least 20 minutes, and the drying time is at least 15 minutes.



Note

The contra angle can be sterilized repeatedly for at least 250 cycles.
The useful life is 1 year, and its lifespan is also different according to the frequency and time of clinical use, and the difficulty of the patient's oral root canal during treatment.



Warning

Do not disinfect the device by steaming.
Do not heat and sterilize the device.

10. Disposal of the product



Do not throw the device into the household garbage system.
Dispose of waste in accordance with local laws and regulation

11. Statement

ZR Touch S warranty for 12 months from the date of purchase by the user.














The company does not provide technical data (such as circuit principles, component lists, etc.) to other organizations.

If you have any questions, please contact your local dealer or manufacturer.

The manufacturer is not responsible for:

1. Use ZR Touch S for purposes and purposes that violate the specific provisions in this instruction manual.
2. Use methods that are contrary to those stated in this manual for cleaning, disinfection and sterilization operations.
3. Disassemble and repair by unauthorized personnel.

12. Symbol Description

	Serial number
	Manufacturer
	Date of manufacture
	Class II equipment
	Type B applied part
	Attention; Consult operation instruction
	Warning, if the operation is improper, it may endanger the user or patient
	Refer to the instructions for use
	Do not throw the device into the household garbage system
	Direct current (power connection)
	Can only be used indoors
	Alternating current
	Follow the instruction manual

13. EMC Declaration

Electromagnetic Compatibility



Attention

- 1)ZR Touch endo motor meets the relevant requirements of IEC60601-1 standard electromagnetic compatibility;
- 2)The user should install and use it according to the electromagnetic compatibility information provided by the accompanying document;
- 3)Portable and mobile RF communication equipment may affect the performance of ZR Touch endo motor.
Avoid strong electromagnetic interference when using it, such as close to mobile phones, microwave ovens, etc.;
- 4)The guidelines and manufacturer's declaration are detailed in the attachment



Warning

- 1)ZR Touch endo motor should not be used close to or stacked with other equipment. If it must be used close or stacked, it should be observed and verified that it can operate normally under the configuration used;
- 2)Except for the cables sold by the manufacturer of the ZR Touch as spare parts for internal components, the use of accessories and cables other than those specified may result in an increase in emission or a decrease in immunity of the ZR Touch S endo motor.

Part name	Cable Length (m)	Whether to block
ADAPTER CABLE	1.5	yes

Guidelines and manufacturer's declaration-electromagnetic emissions

The model ZR Touch is intended for use in the electromagnetic environment specified below.
The user should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment guidance
RF Emissions GB 4824	Group 1	The model ZR Touch uses RF energy only for its internal functions. Therefore, its radio frequency emission is very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions GB 4824	Class B	
Harmonic emission GB 17625.1	Class A	
Voltage fluctuation/flicker emission GB 17625.2	Class A	

Guidance & Declaration — electromagnetic immunity

The model ZR Touch is intended for use in the electromagnetic environment specified below.
The user should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge GB/T 17626.2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst GB/T 17626.4	±2kV for power supply lines	±2kV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge GB/T 17626.5	±1 kV line to line ±2 kV line to earth	±1 kV line to line	
Voltage dips, short interruptions and voltage variations on power supply input lines GB/T 17626.11	<5 % UT,for 0.5cycle (UT>95%) 40 % UT,for 5 cycle (UT 60%) 70 % UT, for 25 cycle (UT30%) <5 % UT,for 5sec (UT>95%)	<5 % UT,for 0.5cycle (UT>95%) 40 % UT,for 5 cycle (UT 60%) 70 % UT, for 25 cycle (UT30%) <5 % UT,for 5sec (UT>95%)	Mains power quality should be that of a typical commercial or hospital environment. If the user requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a battery.
Power frequency Magnetic field (50/60Hz) GB/T 17626.8	3A/m	3A/m,50/60Hz	The power frequency magnetic field should have the level characteristics of the power frequency magnetic field in a typical place in a typical commercial or hospital environment.

NOTE: UT is the a.c. mains voltage prior to application of the test level.

Guidance & Declaration - Electromagnetic immunity

The model ZR Touch is intended for use in the electromagnetic environment specified below.
The user should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
RF conduction GB/T 17626.6	3 V 150 kHz~80 MHz	3V (Effective value)	ZR Portable and mobile RF communications equipment should be used no closer to any part of the models ZR Touch S, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1.2 \sqrt{P}$ $d = 1.2 \sqrt{P}$ 80 MHz~800 MHz $d = 2.3 \sqrt{P}$ 800 MHz~2.5 GHz where P is the maximum output power rating of the transmitter in watts(W) according to the transmitter manufacturer; r and d is the recommended separation distance in meters(m). The field strength of the fixed radio frequency transmitter is determined by surveying the electromagnetic field c, and in each frequency range d should be lower than the compliance level. Interference may occur in the vicinity of equipment marked with the following symbols.
RF radiation GB/T 17626.3	3 V/m 80 MHz~2.5 GHz	3V/m	

NOTE1: At 80MHz & 800MHz, the higher frequency range applies.

NOTE2: The guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

1. Stationary transmitters, such as base stations for wireless (cellular/cordless) telephones and terrestrial mobile radios, amateur radios, AM and FM radio broadcasts, and television broadcasts, whose field strength cannot be accurately predicted in theory. In order to assess the electromagnetic environment of fixed radio frequency transmitters, electromagnetic field surveys should be considered. If the measured field strength of the place where ZR Touch S is located is higher than the above applicable RF compliance level, ZR Touch S should be observed to verify its normal operation.

If abnormal performance is observed, supplementary measures may be necessary, such as re-adjusting the direction or position of ZR Touch S.

2. In the entire frequency range of 150KHz~80MHz, the field strength should be lower than 3 V/m.

Recommended isolation distance between portable and mobile RF communication quipment and ZR Touch S

ZR Touch is expected to be used in an electromagnetic environment where radio frequency radiation disturbance is controlled. According to the maximum rated output power of the communication equipment, the purchaser or user can prevent electromagnetic interference by maintaining the minimum distance between the portable and mobile radio frequency communication equipment (transmitter) and ZR Touch as recommended below.

maximum output power of transmitter W	Separation distance according to frequency of transmitter/m		
	150 kHz ~ 80 MHz $d = 1.2\sqrt{P}$	80 MHz ~ 800 MHz $d = 1.2\sqrt{P}$	8800 MHz ~ 2.5 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For the rated maximum output power of the transmitter not listed in the above table, the recommended isolation distance d, in meters (m), can be determined by the formula in the corresponding transmitter frequency column, where P is the emission provided by the transmitter manufacturer The maximum output rated power of the machine, in watts (W).

NOTE 1: At 80MHz and 800MHz frequency points, the higher frequency band formula is used.

NOTE 2: The engineering medical frequency band between 150kHz and 80MHz refers to 6.765MHz~6.795MHz、13.553MHz~13.567MHz、26.957MHz~27.283MHz和40.66MHz~40.70MHz.

NOTE 3: An additional factor of 10/3 is used to calculate the recommended isolation distance for transmitters in the 150kHz~80MHz engineering and medical frequency band and 80MHz~2.5GHz frequency range to reduce portable/-mobile radio frequency communication equipment accidentally brought into the patient area The possibility of interference caused by time.

NOTE 4: These guidelines may not be suitable for all situations. Electromagnetic propagation is affected by absorption and reflection from buildings, objects and human bodies.



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EC REP

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