FP.26.01.01 Sleep monitoring plug-in test guide

一. Design change history

Date	Version	Release Note	Author	Approver	
				Signature	Post
2023-05-05	V1.0	First Draft	Kiki		

Make: Check: Verify:

二. Test equipment and devices

2.1 Configuration List

1）	CB series control box	CB.15.22.18A	1
2）	Light belt	R5.113.00.067	1
3）	Switching power supply	JLDP.10.023.000	1
4）	Power cord	R5.217.01.012	1
5）	Head drive	JLDQ.14.B.346.132	1
6）	Foot drive	JLDQ.14.B.190.60A	1
7）	Sleep monitoring plug-in		1

2.2 Sleep Monitor

三. Test process

3.1 Test environment construction

1. Register the login module. When users enter the application for the first time, the login page will automatically pop up. As shown in the picture below:

- Registered users can enter their mobile phone number and password to log in.
- Account data can be exchanged with SmartBed, a self-developed project of the company.

2. Click "+" to add the device, as shown in the picture below:

3.2 Functional Test

The motor control interface is as follows:

3.2.1 Head motor lift

Long press "+", the head motor is extended; Press and hold "-" to withdraw the head motor. Release and stop.

3.2.2 Foot motor lift

Long press "+", the foot motor is extended; Long press "-", and the foot motor is withdrawn. Release and stop.

3.2.3 Memory bit +flat

Click the ICONS of "READING", "TV", "ZG", "ANTISNORE", "M1", "M2", and the motor will be executed to the corresponding memory bit position; Hold down the icon for 5s to set the memory bit location

Click the "FLAT" icon to flatten the bed

3.2.4 Underbed light

Click the icon to turn the underbed light on and off

3.2.5 The massage interface is as follows:

1. Click MASSAGEHEAD, MASSAGEFOOT, TIMER, MODE, and select the current function.
2. Click the "SWITCH" icon to adjust the current option status. When the massage is off, clicking "SWITCH" does not work when the "TIMER" and "MODE" options are available
3. Click MASSAGE ON/OFF to turn on and off the head and foot motor

3.2. The alarm screen is as follows:

1.At the top is the time selector, which displays the time of the current alarm. By default, the current time is selected. You can modify the alarm by swiping.

2.Week Date selector, which is used to quickly select a day in weeks when you want to repeat the alarm. By default, it is not repeated, that is, it is not lit at all.

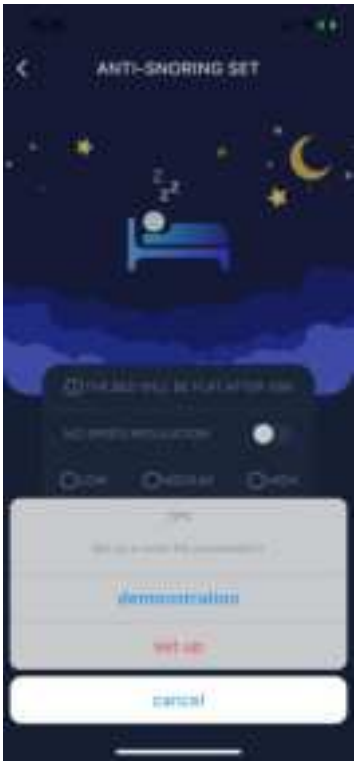
3. The alarm mode includes ZG, FLAT, M1, M2 VIBRATION. Click the icon to select the alarm mode

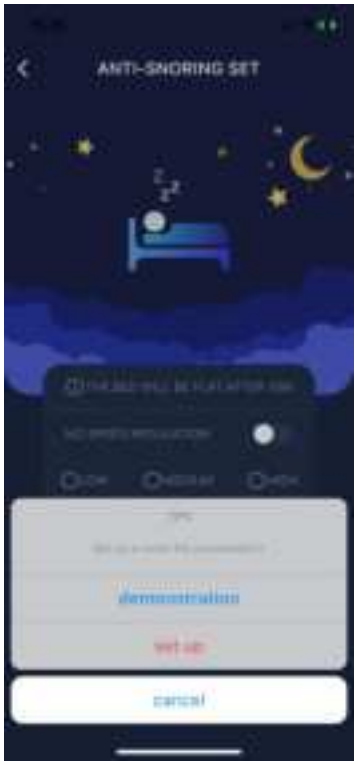
4. "TURN ON" at the bottom is the alarm switch indicator, which can be used to quickly turn on or off the alarm.

3.2.7 The setting interface is as follows:

1. Privacy Mode Indicates the privacy mode. If the privacy mode is enabled, the device does not collect sensor data
2. CHILD MODE: Click the button on the right to turn it on or off. After opening, the bed control page cannot be operated, as shown in the following figure

3. ANTI_SNORING INTERVENTION: only click the button on the right to open or close, as shown in the picture below:





Make： Check： Verify：

Anti-snoring intervention can be divided into demonstration mode and setting mode

Demonstration mode: Bed flat -> head motor extended running 3s-> Wait for 10s-> Head motor extended running 3s-> Wait for 10-> Head motor extended running 3s-> Wait for 10s-> Head motor withdrawn running 3s-> Wait for 10s-> Head motor withdrawn running 3s-> Wait for 10s-> Head motor withdrawn running 3S -> Wait for 10s-> Head motor withdrawn running 3S -> Wait for 10s-> Bed flattened

Setting mode: Divided into low(2s, 10min), MEDIUM(3s, 20min), HIGH(4s, 20min)(head motor lift time, successive descent waiting time)3 gears. According to the sensor minute data packet, the user is monitored in the sleep state, 3 snoring within 5 minutes, will trigger the anti-snoring action, if the snoring state is no longer monitored, the bed remains in the current state; If snoring is still detected, perform the following actions:

Bed flat -> head motor extended run xx-> Wait for xx-> Head motor extended run xx-> Wait for xx-> Head motor extended run xx-> Wait for xx-> Head motor withdrawn run xx-> Wait for xx-> Head motor withdrawn run xx-> Wait for xx-> Head motor withdrawn run XX -> Wait for XX -> Bed flat

Perform this action for 3 times, if the snoring state can be detected after 3 times, no longer perform. The bed will automatically level when it is detected to leave the bed.

Note: XX executes the corresponding time according to the gear position

3.3 Sleep monitoring

Real-time monitoring interface:

Real-time monitoring of breathing, heart rate, body movement status
Click "View Report" to view the report, as shown in the picture below:

Make： Check： Verify：

- From top to bottom are sleep stage pie chart, heart rate curve chart, breathing curve chart, snoring curve chart, body motion curve chart, and score progress bar chart.
- Different from the daily report, the snoring line chart and the body motion line chart of the Week and Month report are the counting line charts. Day is a graph with or without line lines.
- The data itself contains "report" and "record" two states.
- The "DAY" report displays all recorded data from 10 p.m. the night before to 10 p.m. the day after. The middle section will be filled with zero blank data
- The day score is obtained from the average score of all reports for the day. The scoring logic is as follows:

睡眠时间小于 8 小时并且大于等于 6 小时 扣 10 分
睡眠时间小于 6 小时并且大于等于 4 小时 扣 30 分
睡眠时间小于 4 小时，扣 50 分
睡眠时间大于 10 小时，扣 10 分
深睡眠小于 2 小时，不足部分每 10 分钟扣 1 分，四舍五入。如深睡时长 90 分钟，（120-90）/10 = 3 分
入睡时长，大于 30 分钟，每 5 分钟扣 1 分
离床次数，离床一次扣 2 分
呼吸过缓（<8），每次扣 2 分
呼吸过速（>28），每次扣 1 分
心率过缓（<40），每次扣 2 分
心率过速（>100），每次扣 1 分

- Week automatically selects the data in the week of the current date. The data is displayed in chronological order. The data that contains the data and is closest to today is displayed first.
- Month automatically selects the recorded data in the month of the current date. The recorded data is displayed in chronological order. The data that contains the data and is closest to today is displayed first.

Sleep aid function, as shown below:

Click the corresponding icon (" White Noise ", "Light Music", "Alpha Wave") to enter the music player, only the corresponding music package is different

FCC Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential ins tallation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interfere nce will not occur in a particular installation. If this equipment does cause harmful interference to radio or television recepti on, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Important Note:

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

ISED Statement

English: This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must ac cept any interference, including interference that may cause undesired operation of the device.

The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).

- French: Le présentappareilestconforme aux CNR d'Industrie Canada applicables aux appareils

radio exempts de licence. L'exploitationestautorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de bro uillage, et (2) l'utilisateur de l'appareildoit accepter tout brouillageradioélectriquesubi, mêmesi le brouillageest susceptible d' encompromettre le fonctionnement.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Radiation Exposure Statement

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.