

# **Wireless charger product specifications**

**(NFCN601C/ B85UY)**

|          |             |      |            |
|----------|-------------|------|------------|
| Drafter  | Xu Wang     | Date | 2018/05/02 |
| Assessor | Shenshen Xu | Date | 2018/05/03 |
| Approver | Yifeng Zhu  | Date | 2018/05/03 |

## Revision History

[illegible]

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# 1 Product introduction

This product is a wireless charger developed for the latest mobile phone products in the current industry. It implements Qi international standard and is technically fully compatible with wireless charging products certified by Qi standard. This product has the advantages of high charging power, high conversion efficiency, low charging temperature compared with that of last year, thin appearance and top soft cover protecting the mobile phone surface.

## 1.1 Product picture



## 1.2 Model

NFCN601C/ B85UY

## 1.3 Brand

VITEFU

## 1.4 Compatible fast charging phone model

include but not limited to:

Samsung Galaxy Note5/S6/S7/S7+/S7 Edge/S8/S8+等;

iPhone 8/8+/X (Max 7.5W);



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## 2 Testing condition

| Contion                  | Temperature     | Humidity       | Atmospheric preesure |
|--------------------------|-----------------|----------------|----------------------|
| Environmental conditions | +15 °C ~ +35 °C | 25% RH ~ 75%RH | 86kPa ~ 106kPa       |
| Basic testing condition  | 25±3° C         | 35% RH ~ 85%RH | 86kPa ~ 106kPa       |

## 3 Electrical Performance

### 3.1 Input-output

#### 3.1.1 Basic power mode (5W)

| Item           | Symbol    | Testing condition | Minimum value | Rated value | unit |
|----------------|-----------|-------------------|---------------|-------------|------|
| input voltage  | $V_{in}$  | 5W RX             | 4.85          | 5.00        | V    |
| Input current  | $I_{in}$  |                   | 0.78          | 1.15        | A    |
| Output voltage | $V_{out}$ |                   | 4.22          | 4.67        | V    |
| Input current  | $I_{out}$ |                   | 0.84          | 0.93        | A    |

#### 3.1.2 Quick charging mode (10W)

| Item           | Symbol    | Testing condition | Minimum value | Rated value | unit |
|----------------|-----------|-------------------|---------------|-------------|------|
| input voltage  | $V_{in}$  | 10W RX            |               | 9.00        | V    |
| Input current  | $I_{in}$  |                   |               | 1.20        | A    |
| Output voltage | $V_{out}$ |                   |               | 9.01        | V    |
| Input current  | $I_{out}$ |                   |               | 0.90        | A    |

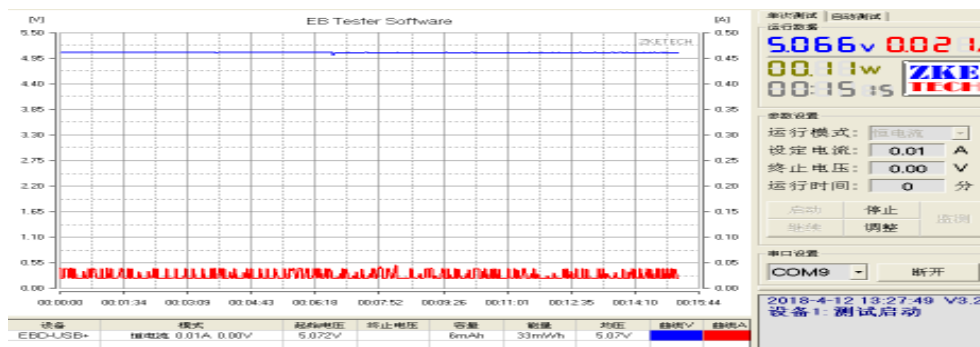
### 3.2 Standby current

#### 3.2.1 Basic power mode

The average standby current is less than 40mA .

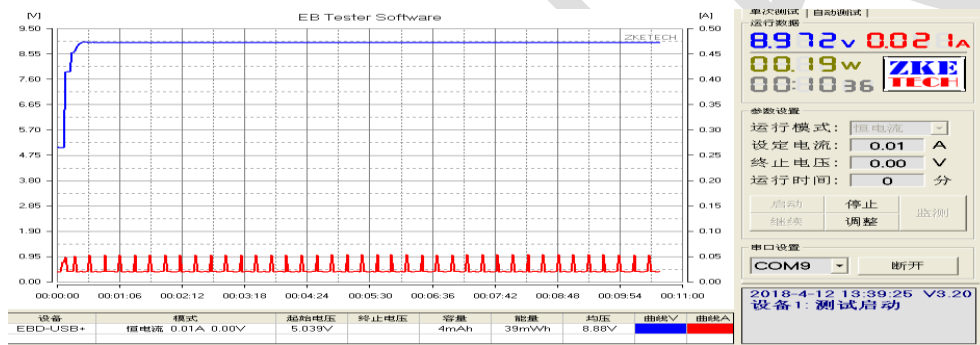


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### 3.2.2 Quick charging mode

The average standby current is less than 40mA .



### 3.3 Effective transmission distance

Within the effective transmission distance, the wireless charging state remains normal.

| Distance between coil and product surface | X       | Y       | Z (vertical) |
|-------------------------------------------|---------|---------|--------------|
| 0mm                                       | >3mm@5V | >3mm@5V | >3mm@5V      |
|                                           | >3mm@9V | >3mm@9V | >3mm@9V      |
| 2mm                                       | >3mm@5V | >3mm@5V | >3mm@5V      |
|                                           | >3mm@9V | >3mm@9V | >3mm@9V      |
| 3mm                                       | >3mm@5V | >3mm@5V | >3mm@5V      |
|                                           | >3mm@9V | >3mm@9V | >3mm@9V      |

### 3.4 charging efficiency

#### 3.4.1 Basic power mode





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#### 3.4.2 Quick charging mode

70-80%。

#### 3.5 operating frequency

The operating frequency of B85UY Wireless charging products: 115~205KHz



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## 4 safety performance

### 4.1 Transmitting indicator light

| Wireless charging         | Light station                                                                             |
|---------------------------|-------------------------------------------------------------------------------------------|
| Power model               | The white indicator lights up , after about 2 seconds off, into standby mode              |
| Normal charging condition | The white light is always on                                                              |
| Standby                   | The white light flashes every 3 seconds                                                   |
| Underpower                | The white light flashes every 1 seconds                                                   |
| Move the mobile phone     | The white indicator light immediately turns to flashing state and goes out after 1 second |
| Foreign Object Detection  | The white light flashes for 10s and then goes out                                         |

### 4.2 FOD function

FOD (Foreign Object Detection) is a unique security mechanism for wireless charging. Place the one-yuan coin between the charging phone and the charger, and the charging stops when the current drops suddenly within 5s.

| voltage | iPhone X | Samsung S8 |
|---------|----------|------------|
| 5V      | support  | support    |
| 9V      | support  | support    |

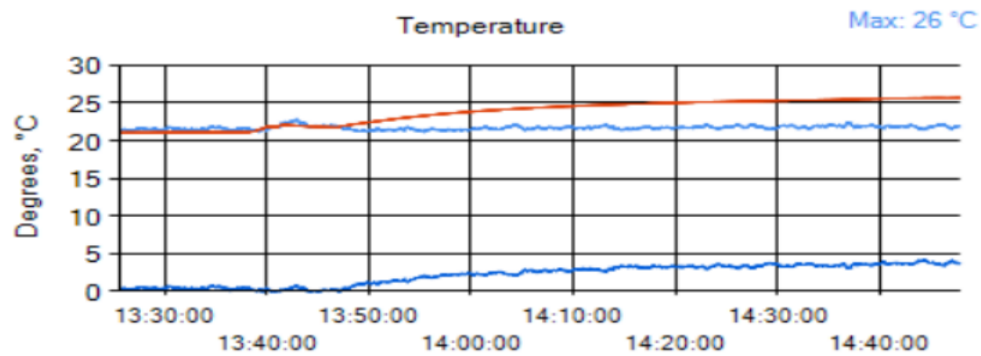
### 4.3 temperature characteristic

#### 4.3.1 Basic power mode

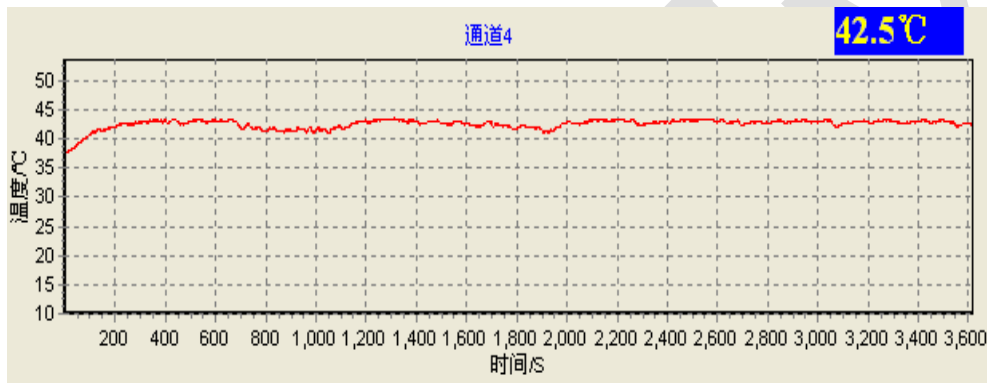
Connect 5W RX for 1 hour under stable working condition, coil surface temperature is lower than 50℃, USB shell surface temperature is lower than 50℃.



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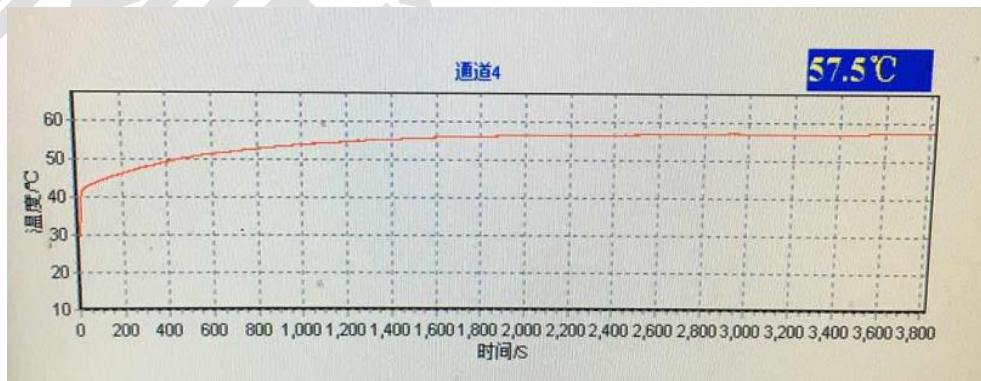
TX surface temperature rise (temperature rise < 4°C)



USB shell surface temperature

#### 4.3.2 Quick charging mode

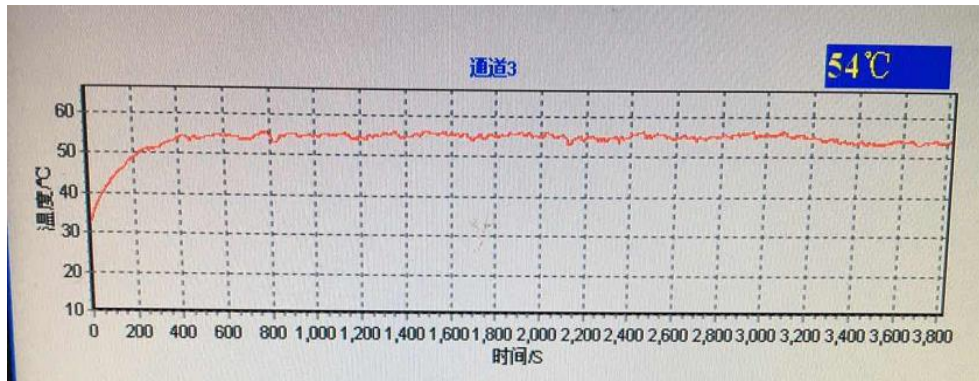
Connect 10W RX for 1 hour under stable working condition, coil surface temperature is lower than 60°C, USB shell surface temperature is lower than 60°C.



TX surface temperature



|                 |                                         |                 |                 |
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USB shell surface temperature

#### 4.4 short-circuit protection

Connect the RX with the load of 5W with the wireless charger. After confirming that it works normally, use the wire to short circuit the TX coil. TX and RX will not cause fire or melt. Restore TX coil to normal, TX and RX can work normally.

#### 4.5 Overcurrent protection

When the input current exceeds 2.5a@5v or 2.2a@9v, the wireless charger will stop working and there will be no dangerous state. After the normal current is restored, the wireless charger can work normally.

#### 4.6 Over-temperature protection

When the NTC temperature on the PCBA exceeds 100°C, the wireless charger will stop working and there will be no dangerous state. After returning to normal temperature, the wireless charger can work normally.。

#### 4.7 Identification

FCC、CE、RoHS



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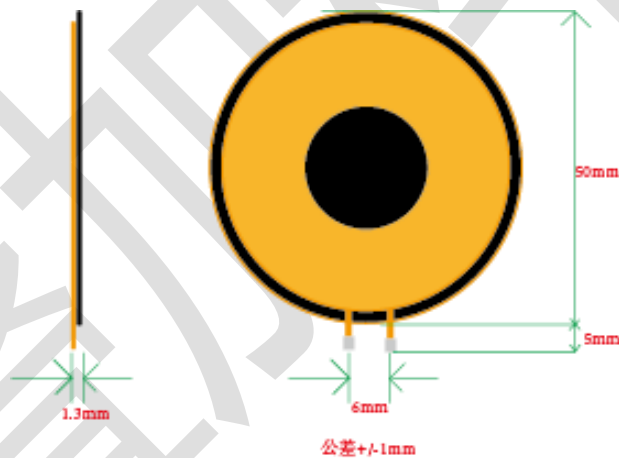
## 5 Mechanical specifications

### 5.1 Specifications

| Items      | parametric description                                                                     |
|------------|--------------------------------------------------------------------------------------------|
| Shape      | Special shape                                                                              |
| Colour     | Black                                                                                      |
| Material   | PC+ABS                                                                                     |
| Dimensions | Size of USB A interface: 34.0*15.4*8.7mm<br>Length of charging cable: 1m standard features |
| Weight     | 80g                                                                                        |

### 5.2 Wireless charging coil

| Mod name | Number of stitches | Magnetic disk | Outside diameter | Inner diameter | Thickness |
|----------|--------------------|---------------|------------------|----------------|-----------|
| En16U    | 10                 | ø50mm         | ø48mm            | ø20mm          | 1.3mm     |



Transmitting coil: coil+magnetic disk

### 5.3 USB connector



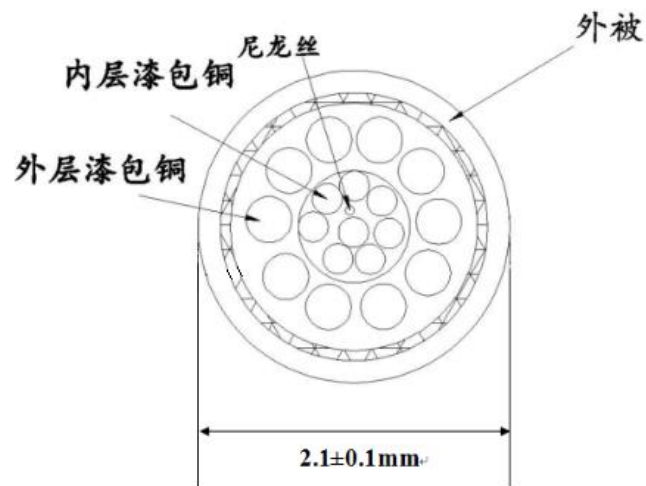


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Transmitter USB

Appearance diagram

## 5.4 Cable size and specification



Schematic diagram of cable cross section

| MATERIAL CHARACTERISTICS                                                                                                                                                       | Behaviour of electricity                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>● Outside diameter 2.1mm</li> <li>● Flame retardant ULV0 class TPE material</li> <li>● Multistrand pull-resistant nylon wire</li> </ul> | <ul style="list-style-type: none"> <li>● Larger current</li> <li>● Small voltage drop</li> <li>● lower temperature</li> </ul> |





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## 6 Reliability test

| NO     | Test Item                    | Testing Conditions                                                                                                                                                                                                      | reference standard          |
|--------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| TS3.1  | low tempertaure storage      | experimental temperature $-20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , duration of experiment 16h, Test again two hours later.                                                                                          | GBT2423.1                   |
| TS3.2  | high temperature storage     | experimental temperature $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , duration of experiment 16h, Test again two hours later.                                                                                           | GBT2423.2                   |
| TS3.3  | The normal temperature aging | Rated load on charger, working for 24 hours at ambient temperature of $25 \pm 5^{\circ}\text{C}$ .                                                                                                                      |                             |
| TS3.4  | vibration test               | Frequency of 10-55 hz, The amplitude is 0.35 mm, In each direction of the X,Y and Z axes, the vibration cycles were 5 times respectively. After the experiment, the appearance was checked and the function was tested. | GBT2423.10<br>GBT15844.2    |
| TS3.5  | Insert force and pull force  | Insert and pull USB plug and socket, insert force $< 35\text{N}$ , pull force $> 10\text{N}$ , frequency is 200 times/hour, plug and pull 1000 times.                                                                   | EIA 364-09                  |
| TS3.6  | Plug service life            | After 1000 times of plugging and unplugging, the machine should have no damage and good function. The force required to completely remove the connection plug from the socket should not be less than 8N                | EIA 364-13                  |
| TS3.7  | Tensile Strength             | Under the action of uniformly increasing tensile force, the wire sample gradually deforms until it breaks, $> 50\text{N}$ .                                                                                             | GBT228                      |
| TS3.8  | tension test                 | The charger output plug and connection wire, as well as the charger housing and connection wire are pulled by 10N tension, which can be connected reliably after 1 minute without looseness or falling off and function | EIA 364-38                  |
| TS3.9  | drop test                    | The product is not packaged and placed on a plane with a height of $1.5(\pm 0.1)\text{m}$ , allowing it to fall freely on 5cm of concrete, once in each direction.                                                      | GBT2423.8<br>IEC 60068-2-27 |
| TS3.10 | sway test                    | Fix the main body or plug end, add a 250g weight weight weight at the other end, swing the connection line from left to right $60^{\circ}$ , and do 1000 times at the speed of 45 times/minute                          | EIA 364-41                  |



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| NO      | Test Item                   | Testing Conditions                                                                                                                                                                                                                                                                                                                                                                         | reference standard     |
|---------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| TS3. 11 | flame retardant test        | It will be ignited by the product lighter, including the cable part and the fuselage part, and observe whether it will automatically extinguish.                                                                                                                                                                                                                                           |                        |
| TS3. 12 | adhesion test               | Draw a small grid (1mm×1mm) on the tested surface with a sharp blade or a special bagel knife. Each line should be deep to the bottom of the surface coating. Test the small grid (no bubbles) with 3M 600 adhesive. Test results level 1 requirements (a little coating is shed at the switching intersection, but the cross-cutting area is not significantly affected by more than 5%). | GB9286<br>ASTM D 3359  |
| TS3. 13 | Alcohol friction test<br>测试 | The grinding head cotton cloth is fully soaked with alcohol (concentration ≥99.7%), a 500g weight is placed on the friction resistance test machine, and 100 rounds are wiped on the tested surface, with a speed of 25 cycles/min.                                                                                                                                                        | GBT6739<br>ASTM D 3363 |

## 7 Storage and transportation

storage temperature: -20℃~70℃

Storage Humidity: 10%~95%

## 8 test report

The attachment is the third-party test report, please refer to the report for details.

## FCC warning:

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.

Any 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 installation. 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 interference will not occur in a





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particular installation.

If this equipment does cause harmful interference to radio or television reception, 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.

#### FCC 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 a minimum distance of 20 cm between the radiator and your body

FCC ID: 2ATVK-NFCN601C