INGICS TECHNOLOGY

Guide
Ver.03

iBS03 User Guide

Introduction

The document is a quick guide for iBS03/iBS03T/iBS03G/iBS03TP/iBS03P/iBS03R/iBS03F/ iBS03Q/iBS03QY/iBS03AD. To quickly verify it, please download INGICS iBS01 Tag Utility APP from below link(Android only): https://play.google.com/store/apps/details?id=com.ingics.tag.igstagconfig

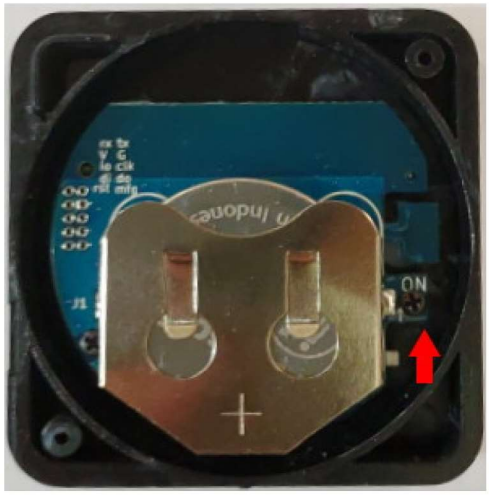
Power on

One CR2450 battery is pre-installed in each iBS03 beacon at shipment. For transportation safety it is powered off by default. User should open the case to turn the power on. **For easier operation, please follow below steps to open/close the case.**

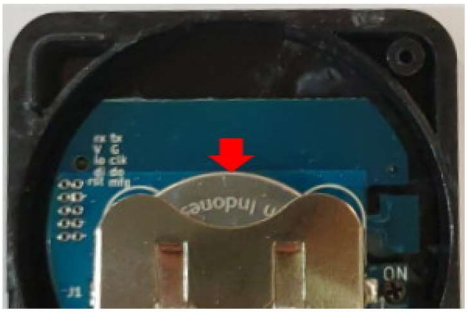
Open the case

1. Prepare a card that you don't need(credit card/member card/employee card)	2. Follow the 1-2-3 sequence	3. Use the card to enlarge the gap position "1"
		
4. Position "1" is enlarged	5. Continue to enlarge position "2". You can rotate the card to do it easily.	6. Go to enlarge position "3". You can rotate the card to open the case now.
		

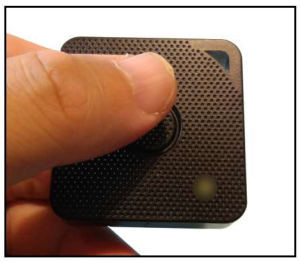
Power on

Switch the small handle to the “ON” position.


Close the case

1. Check if the O-ring is still settled at the correct position during opening.	2. Make sure the battery is inserted to the bottom of the battery socket.	3. Align the bottom case with the top case by the top left corner.
		
4. Press the bottom half of the bottom case by your two thumbs	5. Press the top left/right of the bottom case to make the case sealed better	6. For harsh environments or tough conditions, please fix the case with the two stainless screws attached. (For normal usage, you don’t need these two screws)
		

Operation

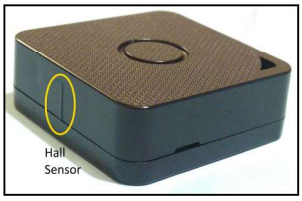


Basically, iBS03 will always transmit BLE payload in the configured time period(default 5s, iBS03TP 30s) in background. It can be used to track the position of a target by deployment with iGS01S or iGS02E beacon gateway. Besides background transmission, button or sensor activation will also trigger a burst of BLE transmission in 300ms(3-4 transmission). This is to increase the possibility that backends can receive sensor status change.

Button

As pressing the button the LED will light up and trigger a burst of BLE transmission with a button activation event. As the back end server received this status change, it can be used as warning or alarming.

Hall Sensor (iBS03)



Inside iBS03, there is a hall sensor that can be used to detect if a magnet is in range or not. Depending on the strength of the magnet, the range is around 0.5cm~1.5cm. The sensor position is marked on the enclosure. A typical usage is to put an iBS03 and magnet on the door(or window) and door frame. When they are close to active range, iBS03 will trigger a series of BLE transmissions. On the other hand, when they are far away from a close state, it will also trigger a series of BLE transmissions.

Accelerometer (iBS03G, iBS03RG)

Motion

The accelerometer will be active when it's status changes. It includes from motion to still or from still to motion.

Fall

There is also a fall detection bit in the payload. When active, it indicates a fall down is detected.

RAW 3-axis

iBS03RG is a special model which will transmit a 3-axis raw accelerometer value in 300ms period. Each transmit will have

3 records and each record is in a 100ms sampling period.

ToF Sensor (iBS03R)

iBS03R measures ToF distance and transmits measured distance in payload.

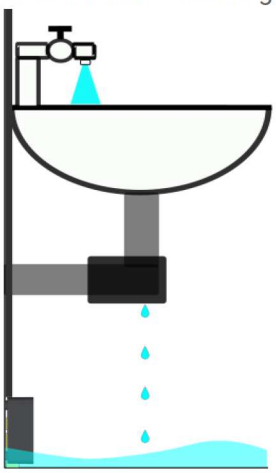
Temperature Sensor (iBS03T, iBS03TP, iBS03P external probe)

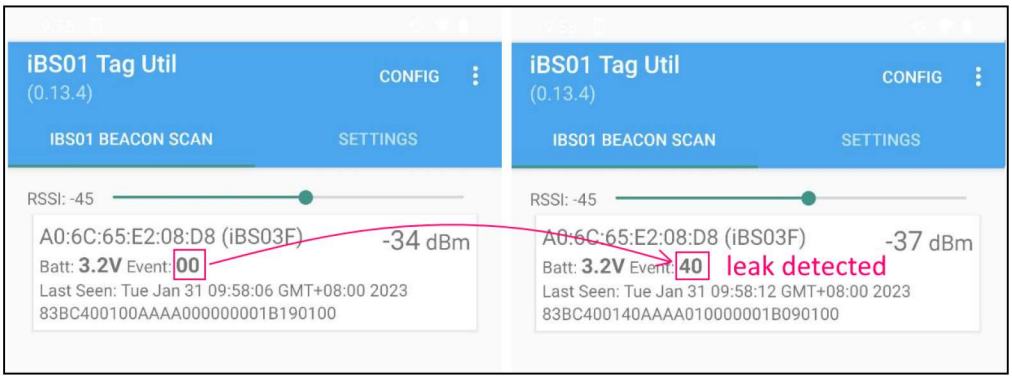
iBS03T/iBS03TP/iBS03P will always transmit temperature values in a configured period.

iBS03TP/iBS03P contains internal temperature sensor and external temperature sensor probe as following diagram:

Flood Sensor (iBS03F)

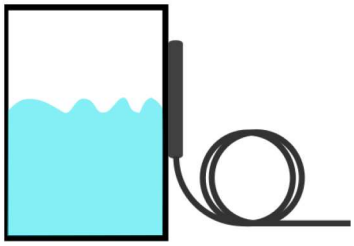
The flood sensor is 1M long and it is suitable to detect liquid leak or flood in the bathroom or kitchen.

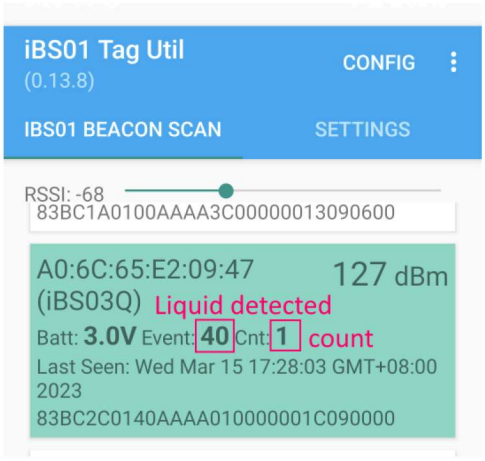




Liquid Sensor (iBS03Q/iBS03QY)

The liquid level sensor is 1M long and It is suitable for sensing liquid level without metal containers and thickness less than 12mm.



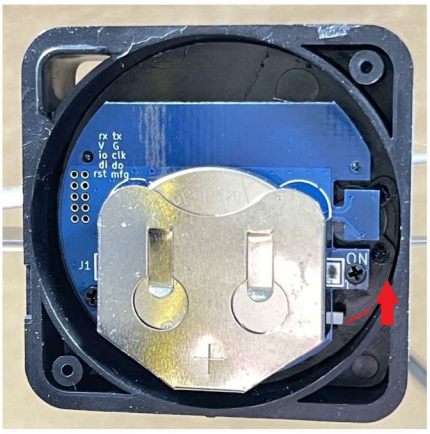


Liquid Sensor Calibration

When the container is changed or the empty state is changed, you have to re-calibrate it, when necessary, please follow the steps to perform the calibration.

Step1- Mount the sensor pad to the surface of the container, typically by double-sided tape

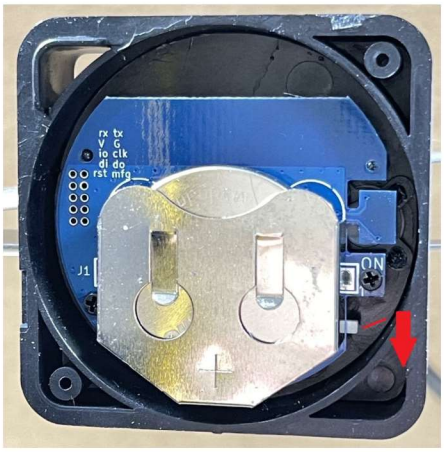
Step2 - Open iBS03Q(iBS03QY) and power it on



Step3 - Press the switch on the sensor to start the calibration

Step4 - Wait for the LED to blink twice

Step5 - Power off iBS03Q(iBS03QY) and wait 2~3 second, power it on again



Power off

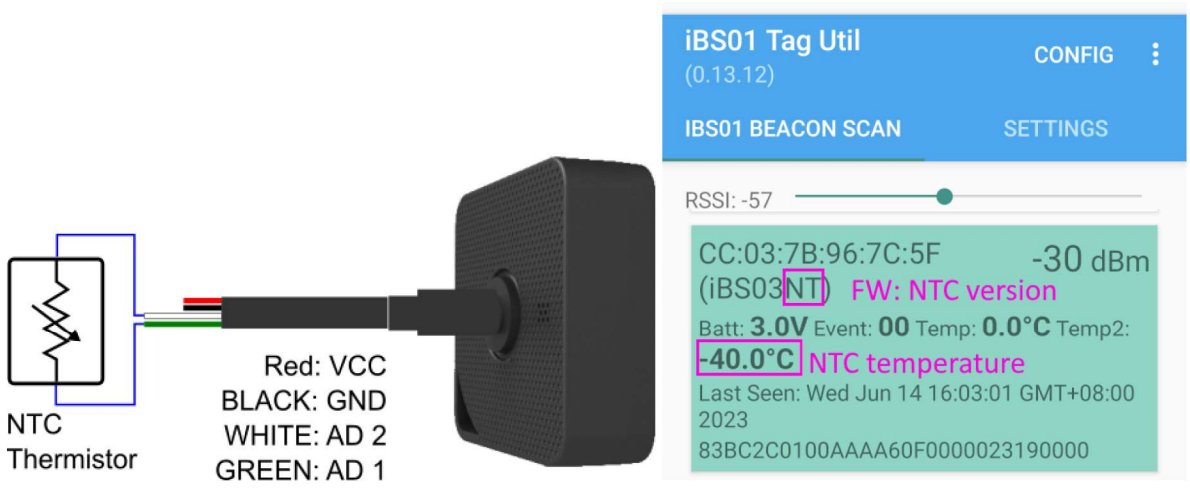
Power on

Step6 - Close the enclosure. Calibration is done and it should be able to work for you

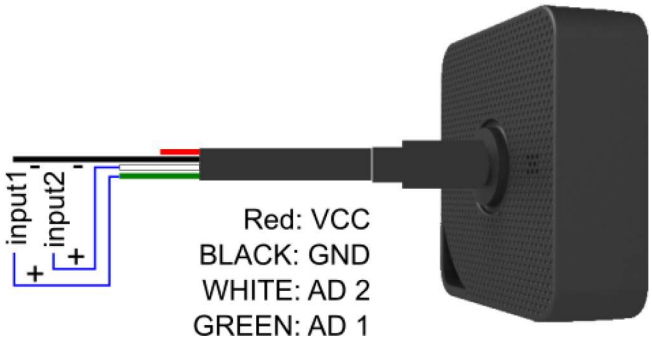
Analog and Digital Input (iBS03AD)

The AD input can also be connected to a temperature sensor, such as NTC.

NTC application



Analog or digital signal application



INGICS iBS01 Tag Utility

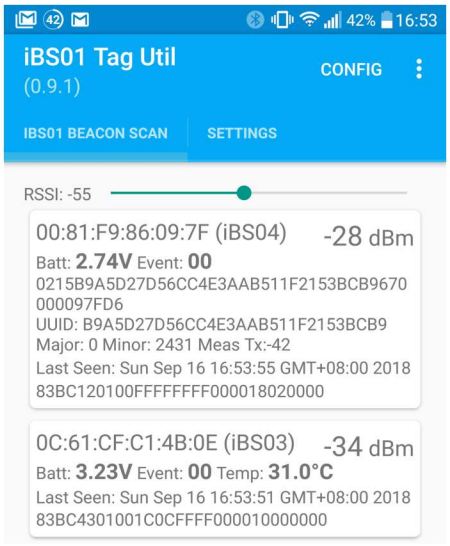
When powered on, iBS03 Tag starts to advertise immediately. Users can use iBS01 Tag Utility to scan iBS03 Tag and configure transmit power and advertising internally of iBS03.

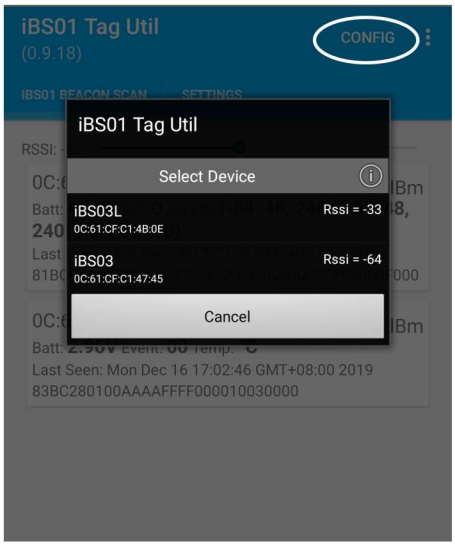
The basic configuration steps is

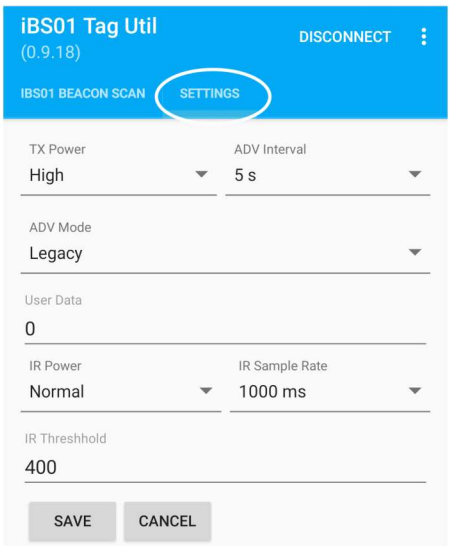
1. At power on, iBS03 will be in configure mode **for 20 seconds**.
2. Connect with the utility.
3. Change the parameters and save
4. Disconnect and then the parameter will be effective.

Details is as following

1. Scan iBS03 Beacon	2. Connect iBS03 a. Power on b. Press CONFIG icon on the up-right corner of utility **within 20 secs** c. You can see iBS03 to be connected	3. Configure iBS03 d. Press iBS03 to connect it. e. In page SETTING, you will see the figure below. f. You can configure the parameters you want and press SAVE and DISCONNECT for the parameters to take effect.







Parameters

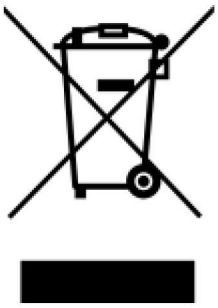
In iBS03, there are two parameters that can be configured.

a. TX power: High(+5 dBm), Mid(0 dBm), Low(-6 dBm)
b. ADV Interval: From 100 ms~1 min.

For iBS03R ToF mode can be choosed (default: Short Range mode)

- Short Range Mode: for distance < 1.3 meters measurement, power consumption optimized.
- Long Range Mode: for distance 1.4~3 meters measurement, power consumption as tradeoff.

Waste Electrical and Electronic Equipment Recycling



Our product is compliant with the WEEE directive for re-use/recovery/recycling. This cross-out wheeled-bin symbol is a reminder that this product should not be treated as household waste. Instead hand it over to the appropriate collection point for the recycling of electrical and electronic equipment in accordance with local environmental regulations for waste disposal.

Since our product is not sold directly to the end user and generally it is a part of our customer's solution, our customer is recognized as a professional seller. Our customer has the responsibility to comply with the requirement of the directive too. To help our customers, when necessary, we will provide a WEEE compliant assessment report for registering and communicating with the local authorities and recycling agency.

Certification

Japan MIC Regulatory
211-180707

IC Regulatory
21379-IBM40R2

FCC Regulatory
2AH2IIBM40R2

NCC Regulatory
iBS03 CCAH23LP5040T3
iBS03G CCAH23LP5042T7
iBS03T CCAH23LP5041T5
iBS03TP CCAH23LP7070T9
iBS03F CCAH23LP7071T1
iBS03Q CCAH23LP7072T0

Statement

Federal Communication Commission Interference Statement

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 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 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 Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

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.

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC Radiation Exposure Statement

This equipment complies with IC RSS-102 radiation exposure limit set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Cet équipement est conforme aux CNR-102 d'Industrie Canada. Cet équipement doit êtreinstallé et utilisé avec une distance minimale de 20 centimètres entre le radiateur et votrecorps. Cet émetteur ne doit pas être co-localisées ou opérant en conjonction avec autreantenne ou émetteur. Les antennes utilisées pour cet émetteur doivent être installés etfournir une distance de séparation d'au moins 20 centimètre de toute personne et doit pas être co-située ni fonctionner en conjonction avec une autre antenne ou émetteur.

NCC 警語

「取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。」

CE Regulatory

iBS03 series(including iBS03/03G/03T, iBS03TP, iBS03R, iBS03P, iBS03R, iBS03F, iBS03Q) have been tested and comply with the essential requirements of the DIRECTIVE 2014/53/EU and LOW VOLTAGE DIRECTIVE 2014/35/EU. Below is the copy of the CE Declaration of Conformity.

DECLARATION OF CONFORMITY

Under EU RED - DIRECTIVE 2014/53/EU -
Under EU-LOW VOLTAGE DIRECTIVE 2014/35/EU

This Declaration that the following designated product

Sensor Beacon
Model No.: iBS03
Multi-listing Model No.: iBS03, iBS03T, iBS03G
Brand Name: INGICS

(Product identification)

complies with the essential requirements of the EU RED - DIRECTIVE 2014/53/EU, EU-LOW VOLTAGE DIRECTIVE 2014/35/EU on the approximation of the laws of the Member States relating to ***Radio Spectrum Matters.***
Assessment of compliance of the product with the requirements relating to radio spectrum matters was based on Annex IV of the Directive **2014/53/EU** and the following standard:

EMC	Radio Spectrum	Safety
EN 301 489-1: V2.2.3 (2019-11) EN 301 489-17:V3.2.4 (2020-09)	EN 300 328 :V 2.2.2(2019-07)	EN 62368-1:2014/COR1:2015 and EN 62368:2014/A11:2017
		Health EN 62479(2010)

(Identification of regulations / standards)

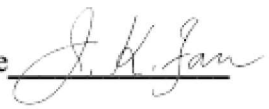
This declaration is issued from

INGICS TECHNOLOGY.
2F., No.15-2, Changshou St.,
Shulin Dist., New Taipei City 238,, Taiwan, R.O.C.

(Name / Address)

Furthermore we declare that our product will be produce in correspondence with all requirements according to the Directive 2014/53/EU, LOW VOLTAGE DIRECTIVE 2014/35/EU.

Name:__J.K.Fan_____ Title:____President_____

Signature 

Date: __2021. 7.27_____

DECLARATION OF CONFORMITY

Under EU RED - DIRECTIVE 2014/53/EU -

This Declaration that the following designated product

Sensor Beacon
Model No.: iBS03TP
Multi-listing Model No.: iBS03AD, iBS03F, iBS03Q, iBS03QY
Brand Name: INGICS

.....
(Product identification)

complies with the essential requirements of the EU RED - DIRECTIVE 2014/53/EU on the approximation of the laws of the Member States relating to ***Radio Spectrum Matters***.
Assessment of compliance of the product with the requirements relating to radio spectrum matters was based on Annex IV of the Directive **2014/53/EU** and the following standard:

EMC	Radio Spectrum	Health
EN 301 489-1: V2.2.3 (2019-11)	EN 300 328 :V 2.2.2(2019-07)	EN 62479(2010)
EN 301 489-17:V3.2.4 (2020-09)		**Safety**
		IEC 62368-1:2018 and
		EN IEC 62368-1:2020+A11:2020

.....
(Identification of regulations / standards)

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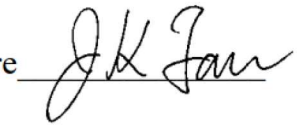
(Name / Address)

Furthermore we declare that our product will be produce in correspondence with all requirements according to the Directive 2014/53/EU.

Name: JK Fan Title: President

Signature 

Date: 2023.08.22

DECLARATION OF CONFORMITY

EU RED - DIRECTIVE 2014/53/EU -
EU-LOW VOLTAGE DIRECTIVE 2014/35/EU -

This Declaration that the following designated product

Sensor Beacon
Model No.: iBS03P
Brand Name: INGICS

.....
(Product identification)

complies with the essential requirements of the EU RED - DIRECTIVE 2014/53/EU, EU-LOW VOLTAGE DIRECTIVE 2014/35/EU, on the approximation of the laws of the Member States relating to ***Radio Spectrum Matters/RF Exposure***.
Assessment of compliance of the product with the requirements relating to radio spectrum matters was based on Annex IV of the Directive 2014/53/EU and the following standard:

EMC	Radio Spectrum	Safety
EN 301 489-1: V 2.2.3 (2019-11)	EN 300 328 (V2.2.2, 2019-07)	EN 62368-1:2014/COR1:2015
EN 301 489-17: V 3.2.4 (2020-09)		and EN 62368-1:2014/A11:2017
		Health
		EN 62479 : 2010

.....
(Identification of regulations / standards)

This declaration is issued for

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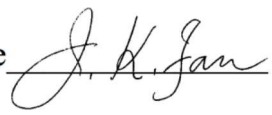
2F., No.15-2, Changshou St.,
Shulin Dist., New Taipei City 238,, Taiwan, R.O.C.

.....
(Name / Address)

Furthermore we declare that our product will be produced in correspondence with all requirements according to the Directive 2014/53/EU, LOW VOLTAGE DIRECTIVE 2014/35/EU and Council Directive 2014/30/EU.

Name: J.K.Fan Title: President

Signature 

Date: 2021. 7. 5

Revision History

DATE	REVISION	CHANGES
Sep 17, 2018	0a	Initial release
Dec 12, 2019	0b	1. Add regulation statement 2. Add iBS03TP
Jan 22, 2021	0c	Add iBS03P/iBS03R
June 2, 2021	0d	1. Add Waste Electrical and Electronic Equipment Recycling section for appropriate recycling the equipment 2. Rearrange page and fix typo 3. Add Certification section
July 5, 2021	0e	Updated Certification section for iBS03P
Oct. 25, 2021	0f	Modify the “Power on” section. Add the more detailed description for opening/closing the case.
Apr 6, 2022	01	Update CE Declaration of Conformity to the latest one.
Jun 6, 2023	02	1. Update NCC statement 2. Add iBS03F, iBS03Q, iBS03QY, iBS03AD Instructions for use
Jul 05, 2023	03	Add iBS03Q and iBS03QY sensor calibration