ihere

SEONGJI

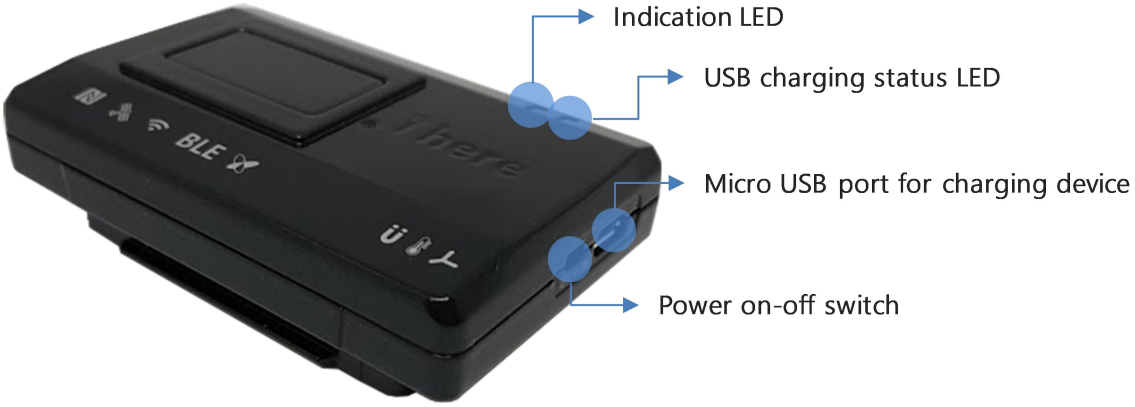
September 10, 2019

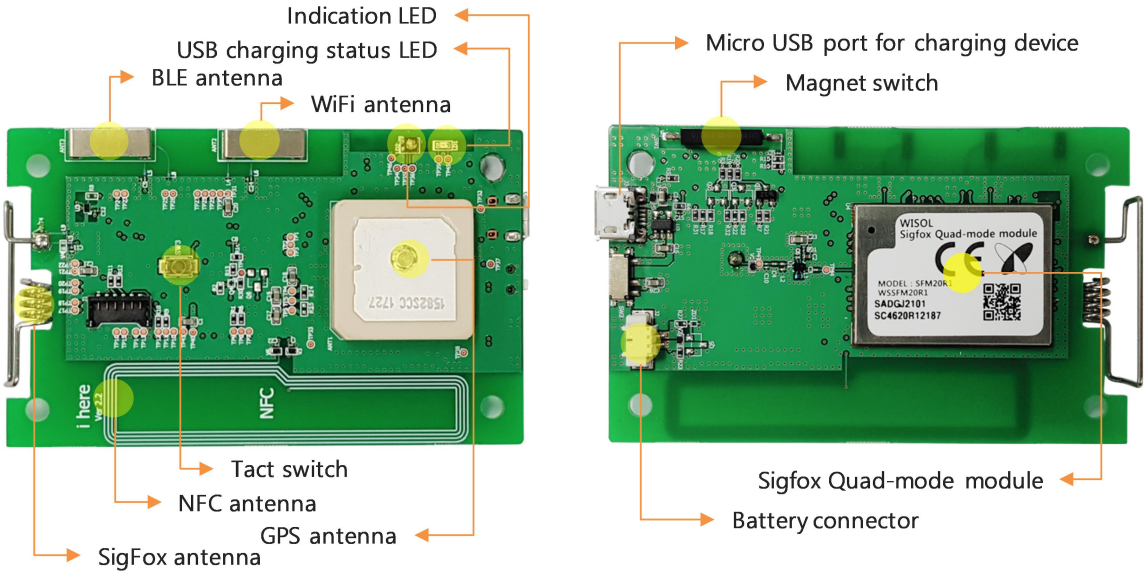
Contents

Key features

- **SIGFOX**
  - RCZ1/2/3/4 support
- **GPS**
  - Adaptive scan time algorithm for power saving
  - Cold start 30 seconds / warm start 3 seconds
- **Battery**
  - Li-ion
  - Battery level detector
  - Rechargeable by solar cell *optional
- **Low sleep current**
  - Deep sleep 2~3uA
  - Sleep 30~40uA
- **WiFi**
  - BSSID scan time 3 seconds
- **BLE**
  - FOTA support
  - Advertizing mode / Connection mode
- **Configurable NFC tag**
- **Accelerometer**
  - Motion interrupt and shock detection
- **Magnetic sensor**
- **Temperature sensor**

Composition





Top | Bottom

LED

USB charging status LED

LED	Supply	Status
Red	Connected	Charging
Off	Connected	Full charge
Off	Not connected	-

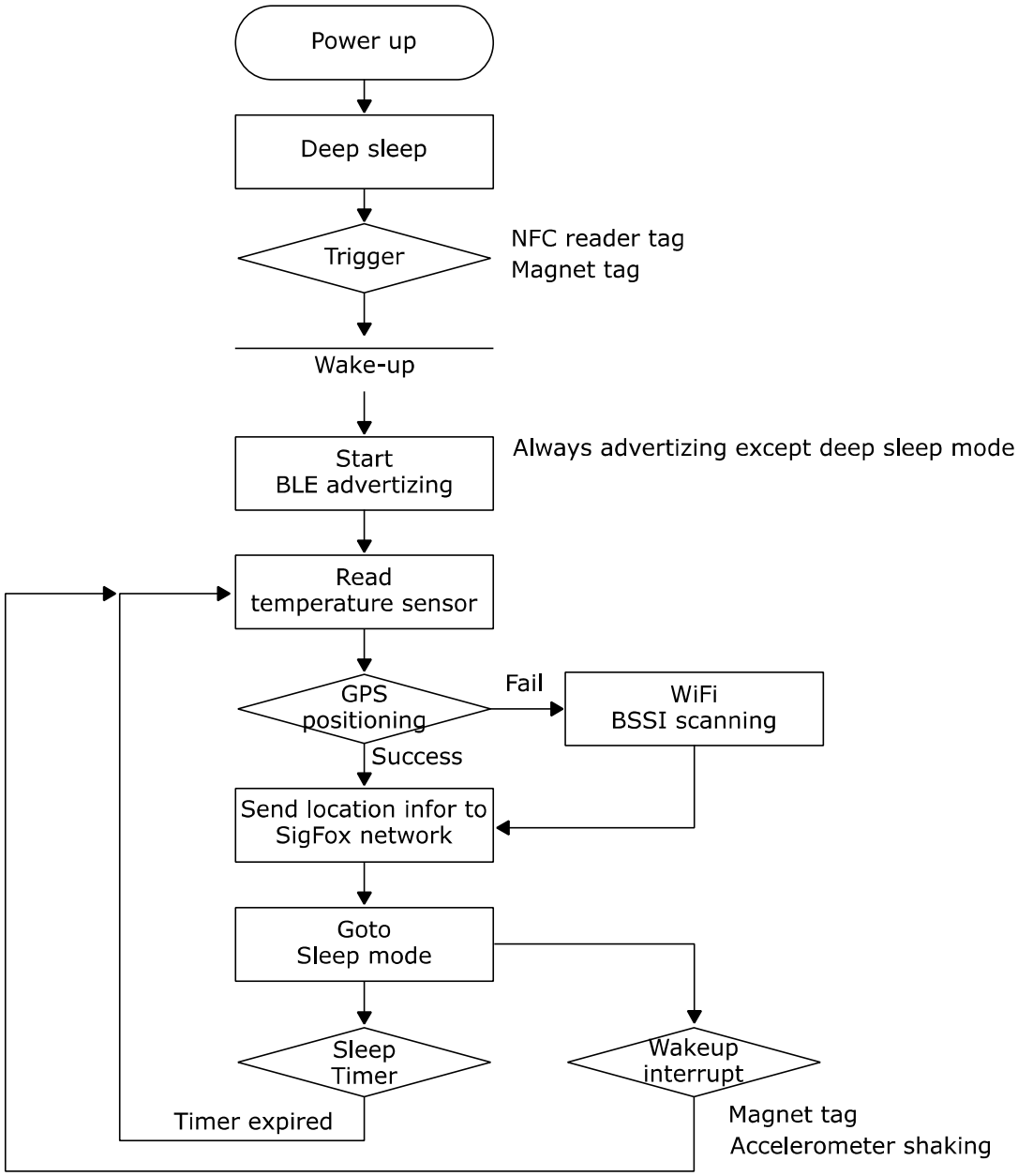
Indication LED

GPS on	WIFI on	SIGFOX on	BLE
Red	Yellow	Blue	Green

Indication LED light color combination.

- Blue + Red = Magenta
- Blue + Green = Cyan
- Green + Red = Yellow
- Blue + Green + Red = White

Default scenario



Electrical characteristic

Absolute maximum ratings

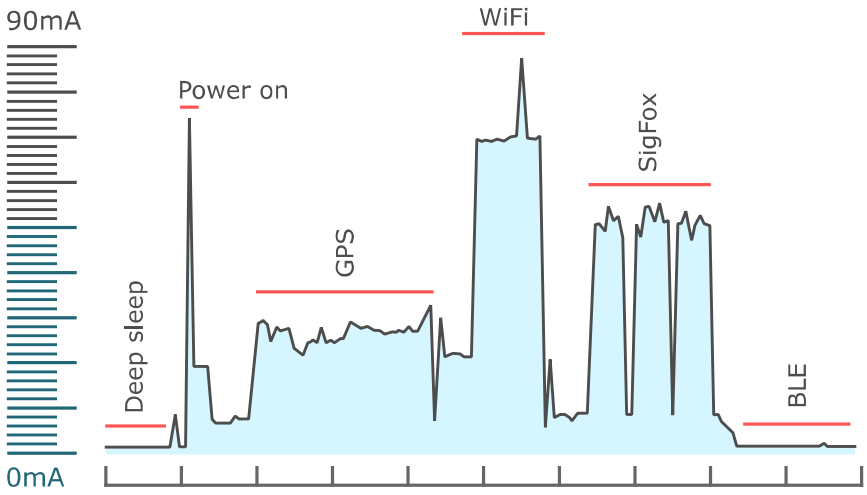
Symbol	Parameter	Rating	Unit
VCC	Module input voltage	5.5	V
OT	Operating Temperature	-30 to +85	℃
ST	Storage Temperature	-40 to +125	℃

DC characteristic

Symbol	Parameter	Min	Typ.	Max	Unit
VCC	Input supply voltage	3.2	3.7	5	V
Current	Deep sleep current		5		uA
	BLE advertizing current@1sec interval		40		uA
	BLE connection		45		
	WiFi scan current		71		mA
	GPS positioning current		27		mA
	Sigfox Tx current@RCZ1,3		54		mA
	Sigfox Tx current@RCZ2,4		200		mA

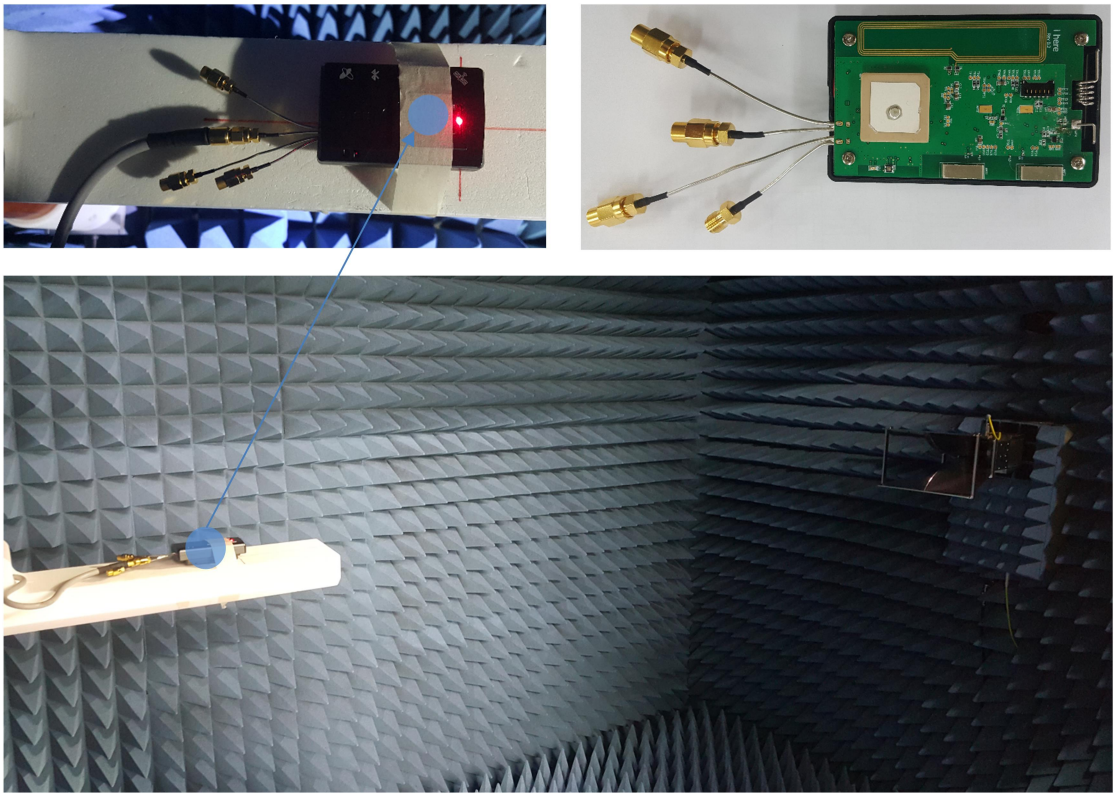
※ Supply to Accelerometer, GPS backup battery is always turn on.

Current consumption on running scenario (@RC1)

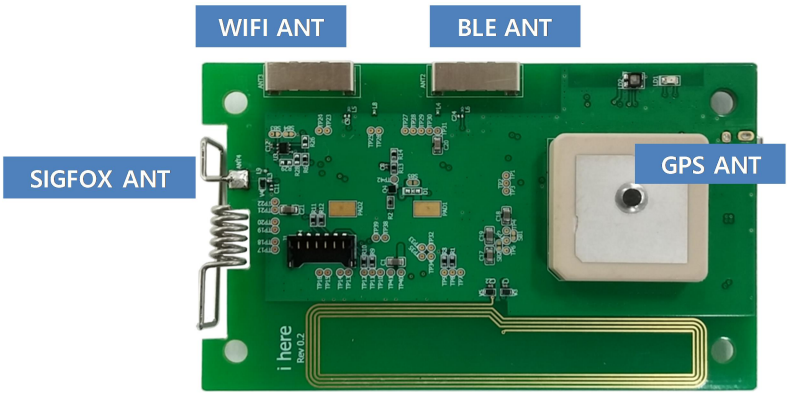


Antenna characteristic

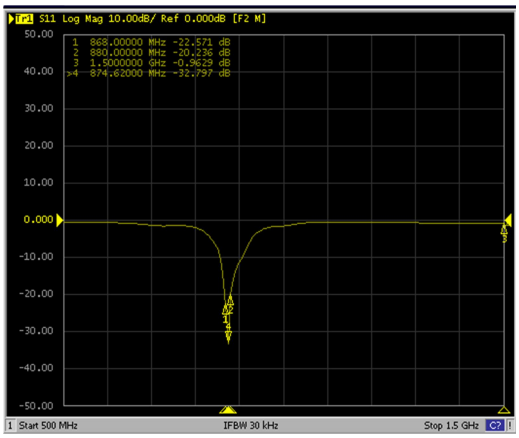
Test environment

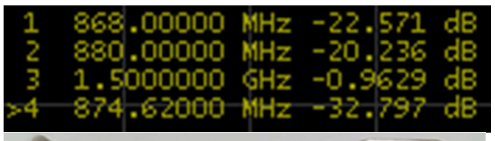


Test result



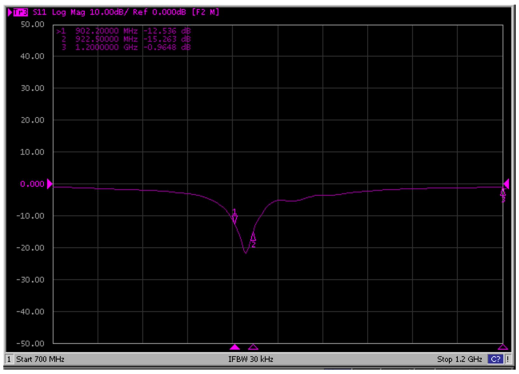
SIGFOX
800MHz
RC1

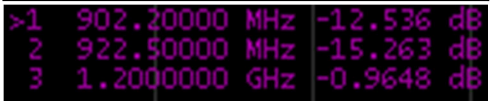




Frequency	Efficiency	Average Gain	Max Gain
860.000000 MHz	60.6 %	-2.2 dBi	2.6 dBi
863.043478 MHz	62.1 %	-2.1 dBi	2.7 dBi
866.086957 MHz	63.1 %	-2.0 dBi	2.7 dBi
869.130435 MHz	64.9 %	-1.9 dBi	2.8 dBi
872.173913 MHz	66.8 %	-1.8 dBi	2.9 dBi
875.217391 MHz	66.6 %	-1.8 dBi	2.9 dBi
878.260870 MHz	67.5 %	-1.7 dBi	2.8 dBi
881.304348 MHz	69.6 %	-1.6 dBi	3.0 dBi

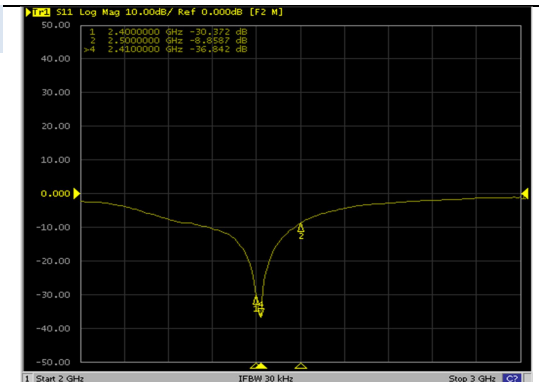
SIGFOX
900MHz
RC 2/3/4

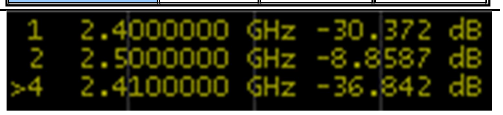




Frequency	Efficiency	Average Gain	Max Gain
902.608696 MHz	54.3 %	-2.6 dBi	1.9 dBi
905.652174 MHz	53.4 %	-2.7 dBi	1.8 dBi
908.695652 MHz	53.0 %	-2.8 dBi	1.8 dBi
911.739130 MHz	55.1 %	-2.6 dBi	1.9 dBi
914.782609 MHz	56.5 %	-2.5 dBi	2.0 dBi
917.826087 MHz	56.8 %	-2.5 dBi	2.0 dBi
920.869565 MHz	57.1 %	-2.4 dBi	1.9 dBi
923.913043 MHz	57.6 %	-2.4 dBi	1.9 dBi
926.956522 MHz	57.1 %	-2.4 dBi	1.8 dBi
930.000000 MHz	55.6 %	-2.5 dBi	1.7 dBi

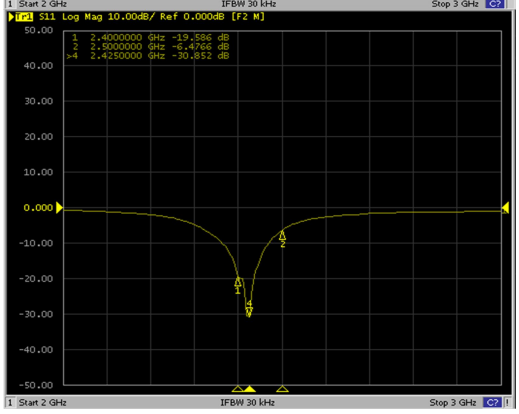
WIFI

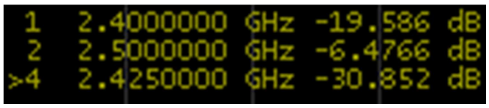




Frequency	Efficiency	Average Gain	Max Gain
2400.000000 MHz	36.2 %	-4.4 dBi	0.7 dBi
2410.000000 MHz	40.2 %	-4.0 dBi	0.5 dBi
2420.000000 MHz	39.7 %	-4.0 dBi	0.4 dBi
2430.000000 MHz	40.0 %	-4.0 dBi	0.5 dBi
2440.000000 MHz	43.0 %	-3.7 dBi	1.0 dBi
2450.000000 MHz	47.2 %	-3.3 dBi	1.3 dBi
2460.000000 MHz	50.7 %	-3.0 dBi	1.6 dBi
2470.000000 MHz	54.3 %	-2.7 dBi	1.8 dBi
2480.000000 MHz	57.5 %	-2.4 dBi	1.9 dBi

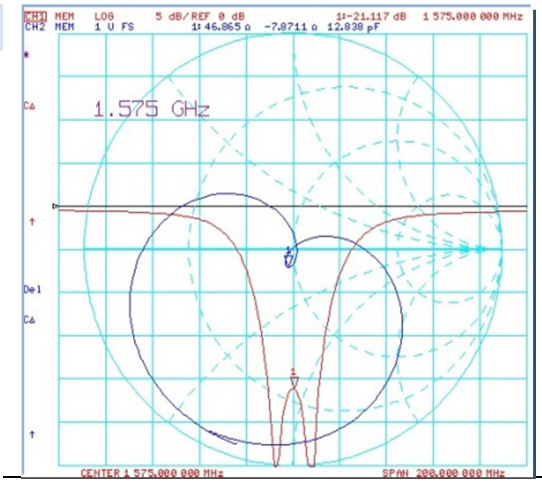
BLE





Frequency	Efficiency	Average Gain	Max Gain
2400.000000 MHz	55.9 %	-2.5 dBi	2.3 dBi
2410.000000 MHz	55.9 %	-2.5 dBi	2.2 dBi
2420.000000 MHz	58.7 %	-2.3 dBi	2.3 dBi
2430.000000 MHz	62.7 %	-2.0 dBi	2.6 dBi
2440.000000 MHz	59.2 %	-2.3 dBi	2.5 dBi
2450.000000 MHz	58.8 %	-2.3 dBi	2.6 dBi
2460.000000 MHz	58.2 %	-2.4 dBi	2.6 dBi
2470.000000 MHz	55.1 %	-2.6 dBi	2.5 dBi
2480.000000 MHz	55.9 %	-2.5 dBi	2.7 dBi

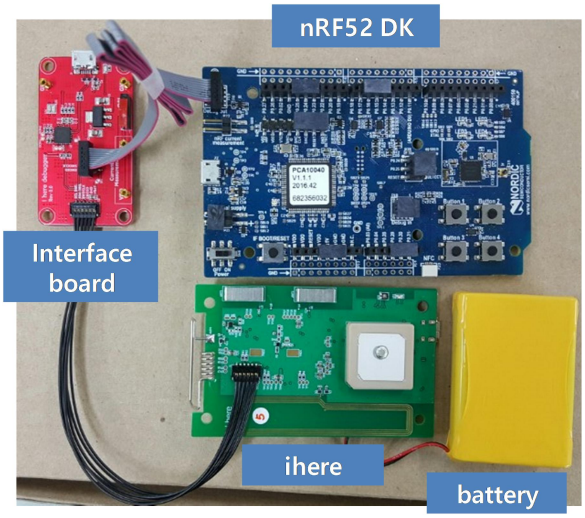
GPS

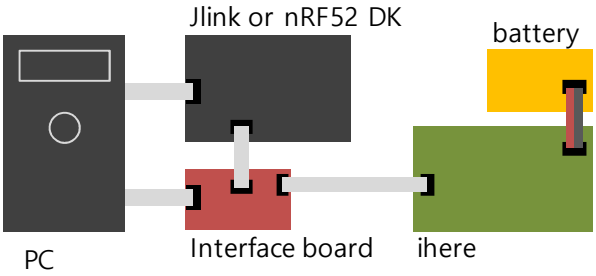


Frequency	Efficiency	Average Gain	Max Gain
1560.000000 MHz	69.1 %	-1.6 dBi	2.8 dBi
1562.500000 MHz	67.7 %	-1.7 dBi	3.0 dBi
1575.000000 MHz	69.3 %	-1.6 dBi	4.3 dBi
1580.000000 MHz	62.6 %	-2.0 dBi	3.9 dBi

Debug interface connection

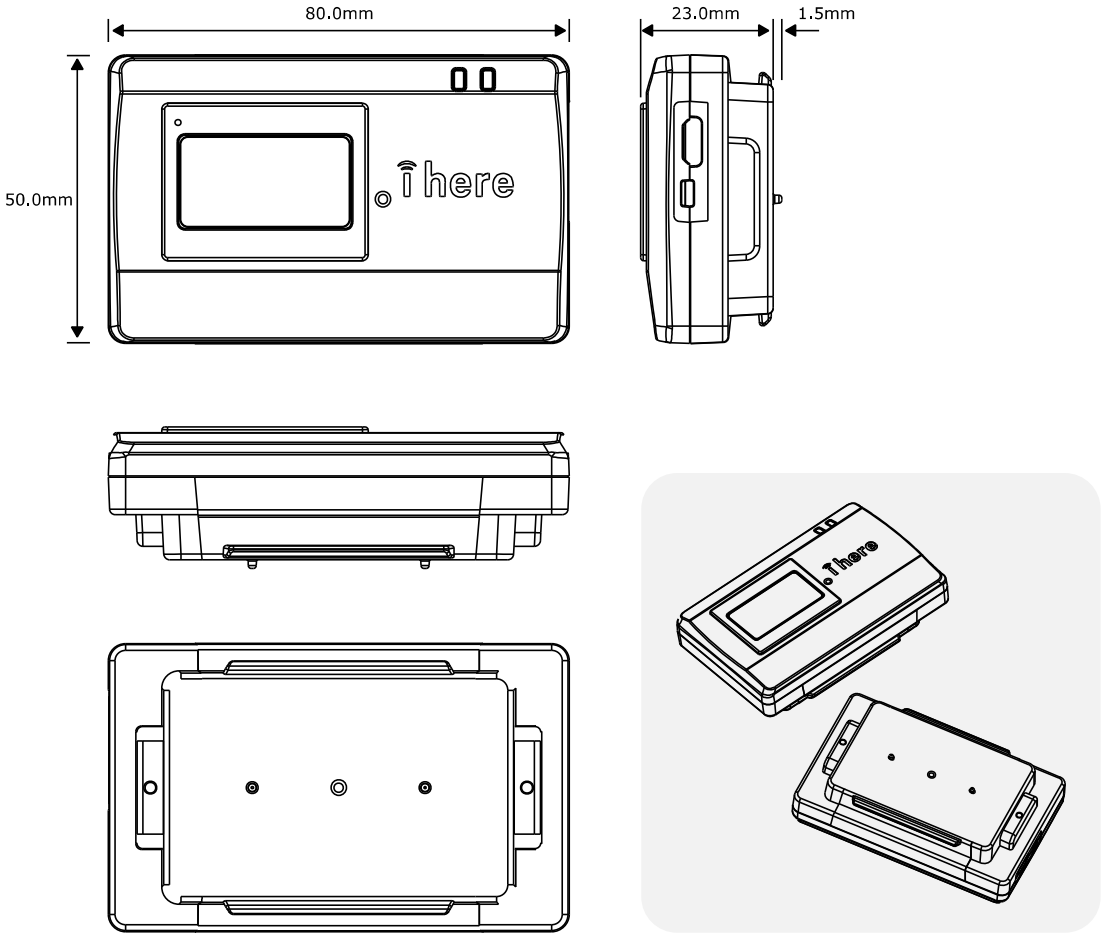
Please refer to the download manual and user manual of WSSFM20R module.





Mechanical characteristic

	Top/bottom case	Solar/LED window
Material	PC	Acrylic



WISOL hereby declares that this ihere is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

The antennas must be installed such that a minimum separation distance of at least [cm] is maintained between the radiator and all persons at all times. This device must not be collocated or operating in conjunction with any other antenna or transmitter