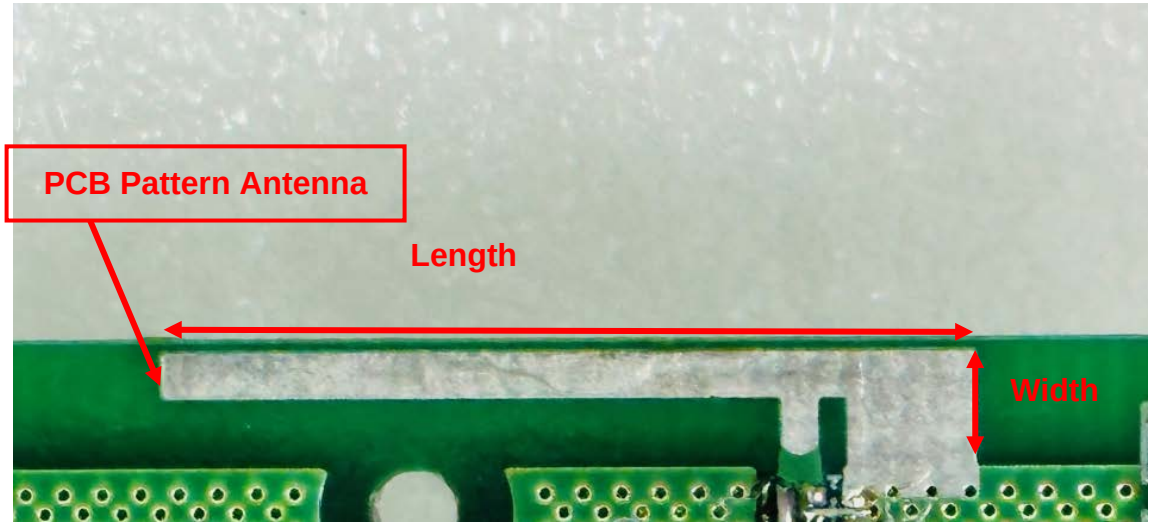
Antenna Information

Item	Contents
Antenna Type	PCB Pattern Antenna
Antenna peak gain	3.11 dBi
Manufacturer / Model name	FANLIGHT Co., Ltd. / P1H-001
Address of manufacturer	4F, 22, Nonhyeon-ro 128-gil, Gangnam-gu, Seoul, South Korea, 06105
Test Laboratory	RadiAnt
Antenna Length	2.1 cm
Antenna Width	0.3 cm



Date :2022.05.20

SPECIFICATION

Product Name	**ANTENNA**
Customer	**FANLIGHT**
Model Name	**P1H-001**
Provider	**RadiAnt**

Buyer	**Submitted**	**Checked**		**Approved**
RadiAnt	**Submitted**	**Checked**	**Checked**	**Approved**
				

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1. Product History

LIST					
NO	Data	Front	After	Change	REV
1	2022.05.20			Approval	0
2					
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2. Electrical Feature

2.1. Frequency Band

BAND	BLUETOOTH
FREQUENCY	2400~ 2485MHz

2.2 Impedance

2.2.1 Input Impedance

- R =50Ω

2.2.2 Measuring Method

By using Network Analyzer, connect the antenna installed Set BT terminal to the reflection point of Analyzer and measure the impedance value within the designated frequency band.

2.4 VSWR

Impedance Matching optimization is performed under the below mentioned environment.

2.3.1 Free Space Environment

<BT ant>

BAND	BLUETOOTH			
FREQ.	2400MHz	2425MHz	2450MHz	2485MHz
VSWR	1.86 : 1 under	1.59 : 1 under	1.62 : 1 under	2.20 : 1 under

2.3.1 Measuring Method

Connect (soldering) 50Ω semi-rigid coaxial cable to the 50Ω spot in Set BT terminal. To minimize the loss of transmission, semi-rigid coaxial cable is used. Including PCB, the Set BT terminal shouldn't be different from the one, which will be used for mass production. Specification should be the same for all frequency bands. Free Space means that Set BT terminal is put on the surface of no conducting plastic.

2.5 Directivity

Omni-directional (SUM)

<BT Ant>

	1	2	3	4
Frequency [MHz]	2400	2425	2450	2485
Avg.Gain [dBi]	-1.59	-1.75	-2.34	-2.77
Efficiency [%]	69.4	66.9	58.3	52.8
Peak Gain [dBi]	3.39	3.11	2.51	2.05

2.6 Maximum Power

- **P=2W Under**

3. Environment Test

3.1 Operating Temperature Test

3.1.1 Test Condition

Temperature = -30℃, +80℃

Duration time = 1 hour

3.1.2 Requirements

After the test, the antenna must not have an outer damage, and also it must pass requirement shown in 2.4.

3.1.3 Measuring Method

Antenna is kept at -30℃ for 1 hour and +80℃ for 1 hour and than passed test of 2.4

3.2 Temperature Cycling Test

3.2.1 Test Condition

- Low cycling Temperature TLC = -40℃
- High cycling Temperature THC = +80℃
- 1Cycle = 4 hours
- Test number = 10Cycle

3.2.2 Requirements

After the test, the antenna must not have an outer damage, and also it must pass requirement shown in 2.4.

3.2.3 Measuring Method

Antenna is kept at low temperature -40℃ for 2 hours and increase the temperature up to +80℃ within 2 hour and kept for another 2 hours at the same temperature will be 1 cycle. As shown in Figure 3.2.1 repeat 10 cycle and kept for 2 hour in normal temperature.

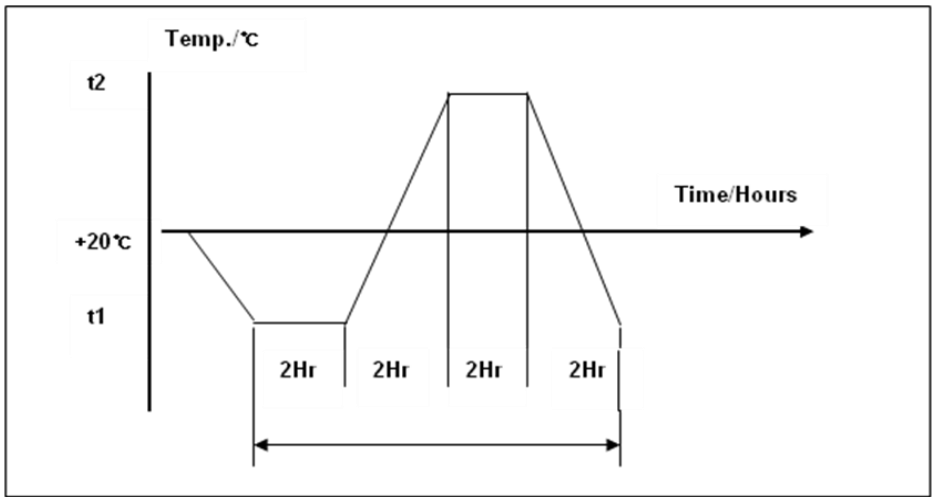


Figure 3.2.1 Temperature Cycling

3.3 Corrosion Resistance Test

3.3.1 Test Condition

- NaCl = 90%
- Water Temperature = 60℃
- Duration Time = 96 hours

3.3.2 Requirements

After the test, the antenna must not have an outer damage, and also it must pass requirement shown in 2.4.

3.3.3 Measuring Method

Antenna is soaked in sodium chloride solution at temperature +60℃ and 90%(NaCl) for 96 hours and dry out.

4. Electric Performance Data

4.1. Smith Chart & VSWR

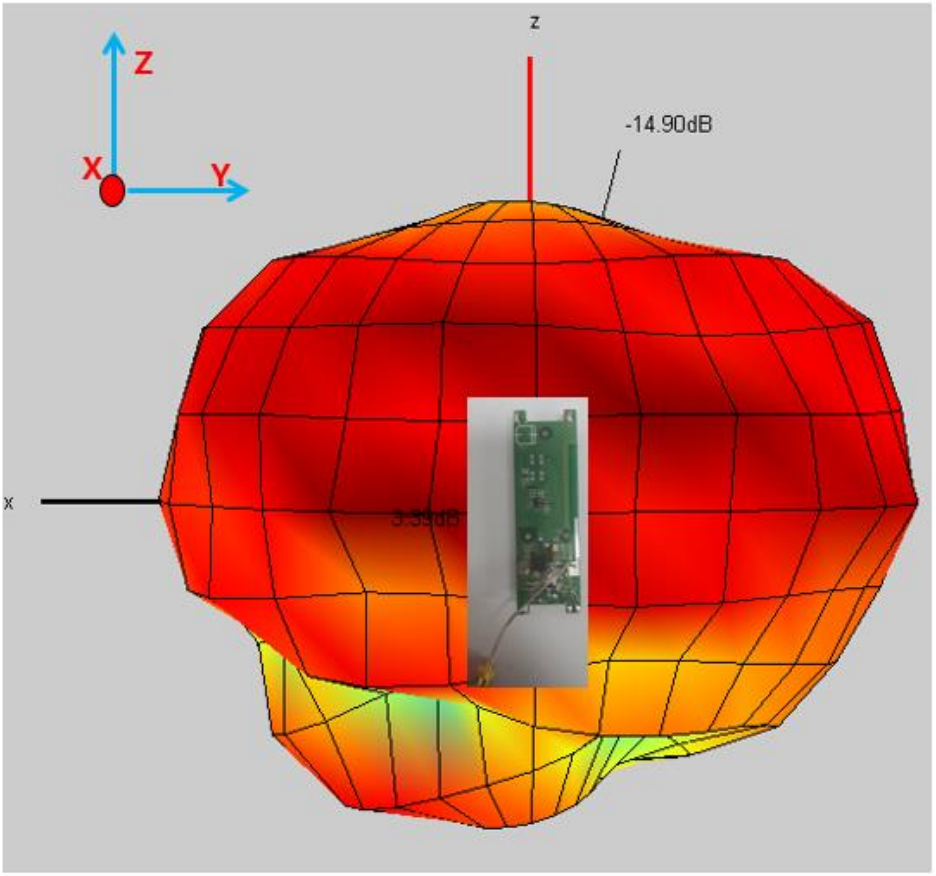
<BT Antenna>

<2.400~2.485GHz >

4.2. GAIN DATA

4.2.1 BT ant

-3D Radiation Pattern



-2D Radiation Pattern