



REPORT No.: SZ23050313E01

# TEST REPORT

**APPLICANT** : Pirnar d.o.o

**PRODUCT NAME** : Pirnar 2CH Smart LED Controller

**MODEL NAME** : SmartLux

**TRADE NAME** : Pirnar SmartLux

**BRAND NAME** : Pirnar

**STANDARD(S)** : IEEE Std 149-2021

**RECEIPT DATE** : 2023-05-25

**TEST DATE** : 2023-05-29

**ISSUE DATE** : 2023-06-02

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**MORLAB**

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# DIRECTORY

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| Change History |            |                   |
|----------------|------------|-------------------|
| Version        | Date       | Reason for change |
| 1.0            | 2023-06-02 | First edition     |



# 1. Technical Information

**Note:** Provide by applicant.

## 1.1. Applicant and Manufacturer Information

|                              |                                                  |
|------------------------------|--------------------------------------------------|
| <b>Applicant:</b>            | Pirnar d.o.o                                     |
| <b>Applicant Address:</b>    | Bravnicarjeva ulica 20, 1000 Ljubljana, Slovenia |
| <b>Manufacturer:</b>         | N/A                                              |
| <b>Manufacturer Address:</b> | N/A                                              |

## 1.2. Equipment Under Test (EUT) Description

|                      |                 |
|----------------------|-----------------|
| <b>Wireless Type</b> | N/A             |
| <b>Frequency</b>     | 2400MHz-2500MHz |
| <b>IMEI</b>          | N/A             |
| <b>Sample No.</b>    | 1#              |

**Note:** The sample photos shall be provided separately in Annex C according to customer requirements.

## 2. Test Results

### 2.1. Applied Reference Documents

Leading reference documents for testing:

| No. | Identity          | Document Title                                     |
|-----|-------------------|----------------------------------------------------|
| 1   | IEEE Std 149-2021 | IEEE Recommended Practice for Antenna Measurements |

### 2.2. Test Conditions

Test Environment Conditions:

|                       |         |
|-----------------------|---------|
| Relative Humidity(%): | 25 - 75 |
| Temperature(°C):      | 10 - 30 |

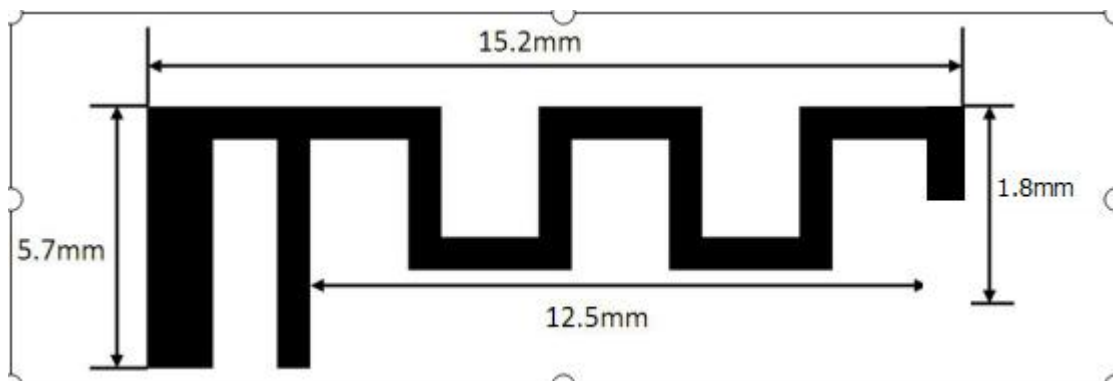
### 2.3. Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO. When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.

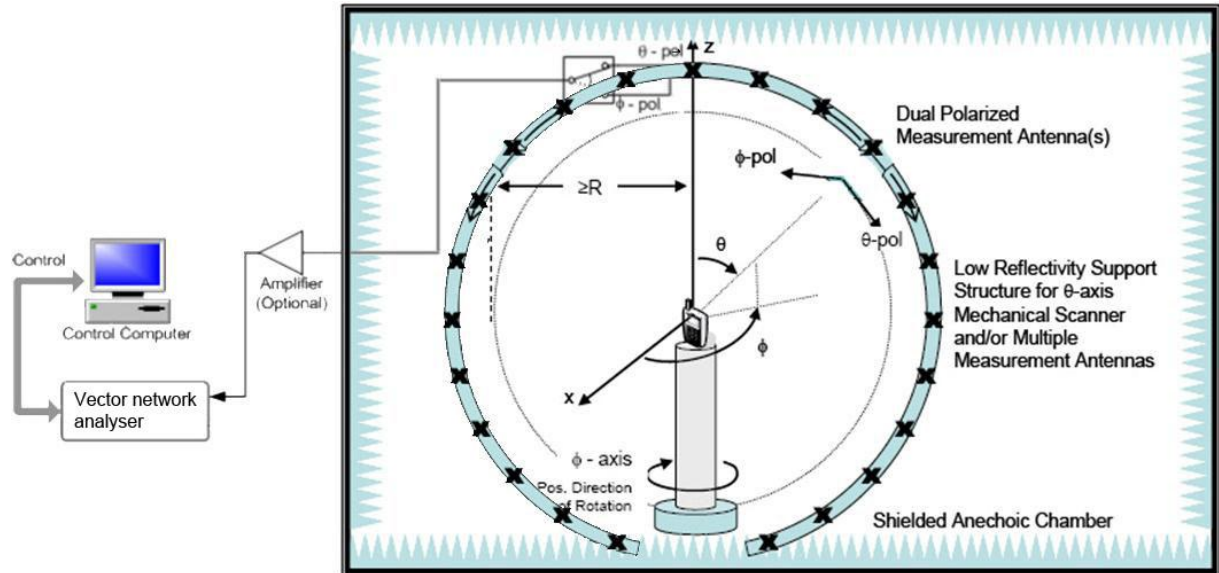
## 2.4. Test Results lists

### 2.4.1. Gain

| Frequency (MHz) | Gain(dBi) |
|-----------------|-----------|
| 2400            | 0.11      |
| 2410            | 0.10      |
| 2420            | -0.21     |
| 2430            | -0.52     |
| 2440            | -0.69     |
| 2450            | -0.93     |
| 2460            | -1.00     |
| 2470            | -1.20     |
| 2480            | -1.22     |
| 2490            | -1.12     |
| 2500            | -1.05     |



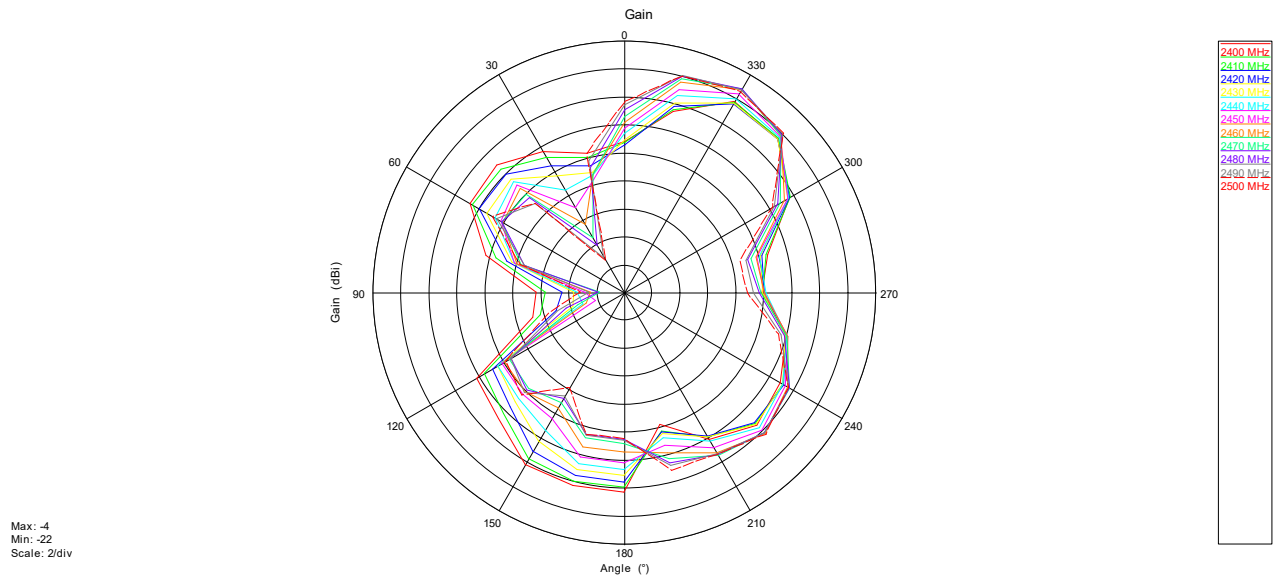
## Annex A Test Setup Photos



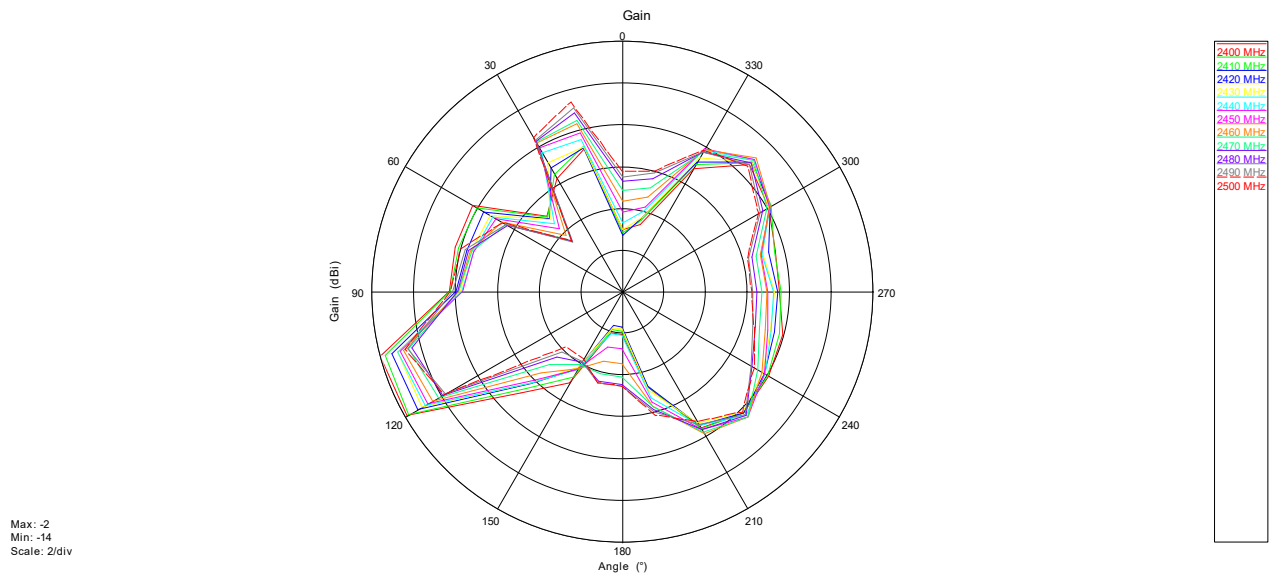


## Annex B Figures

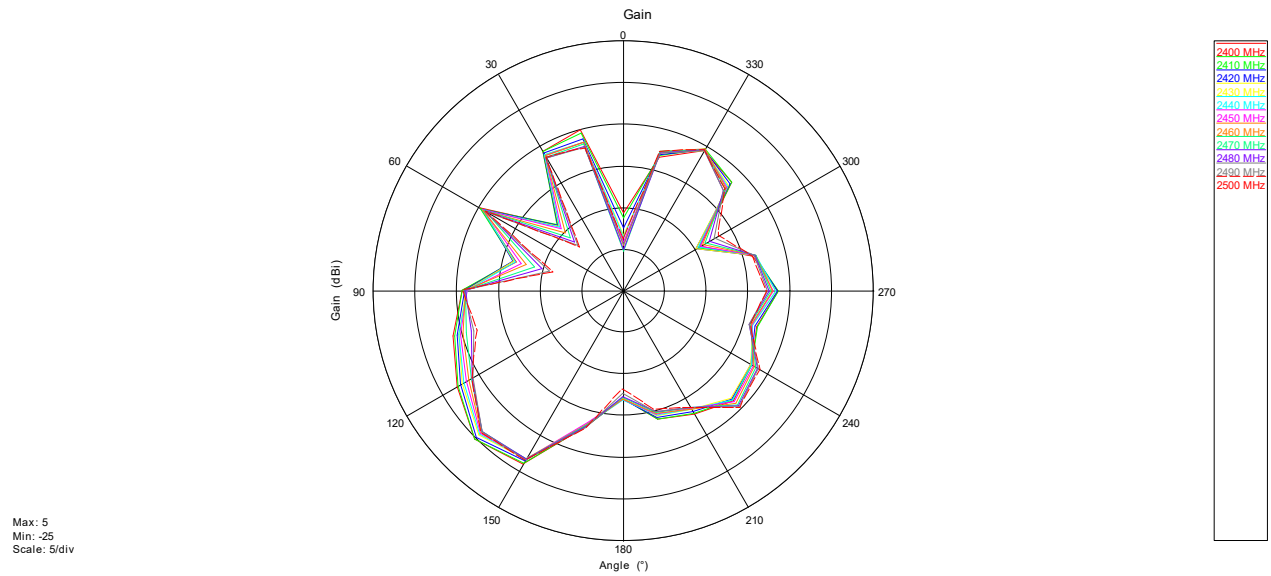
### 1. 2D Radiation Pattern



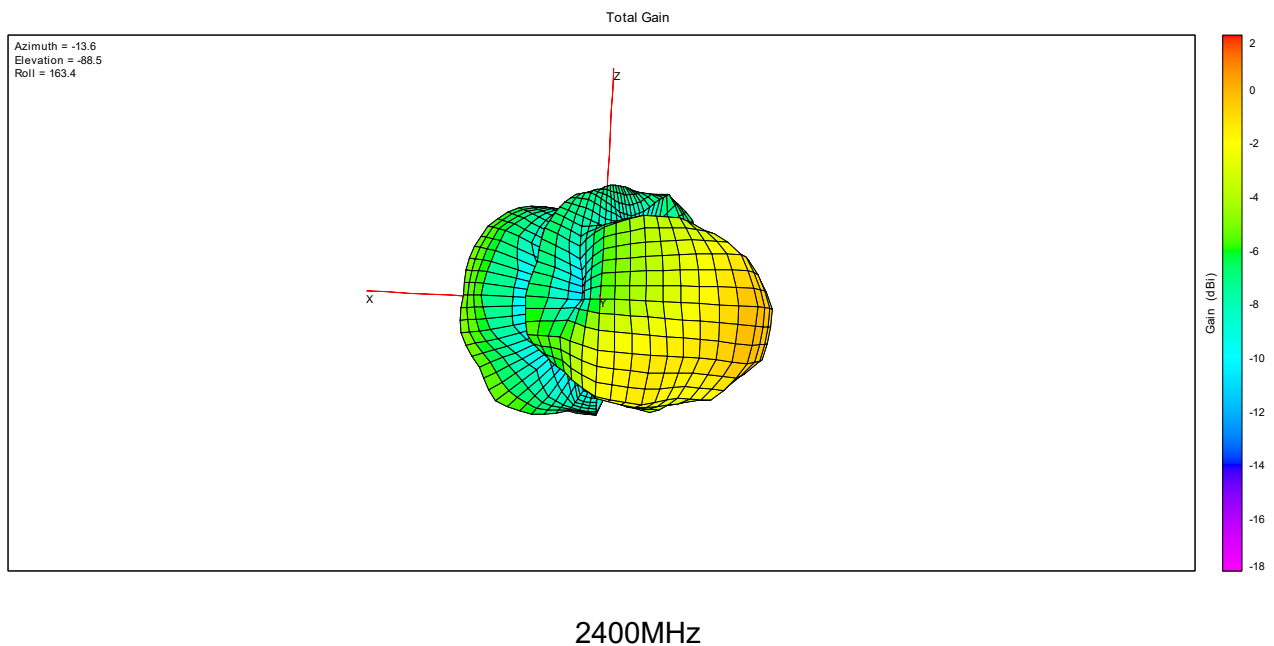
Phi=0°

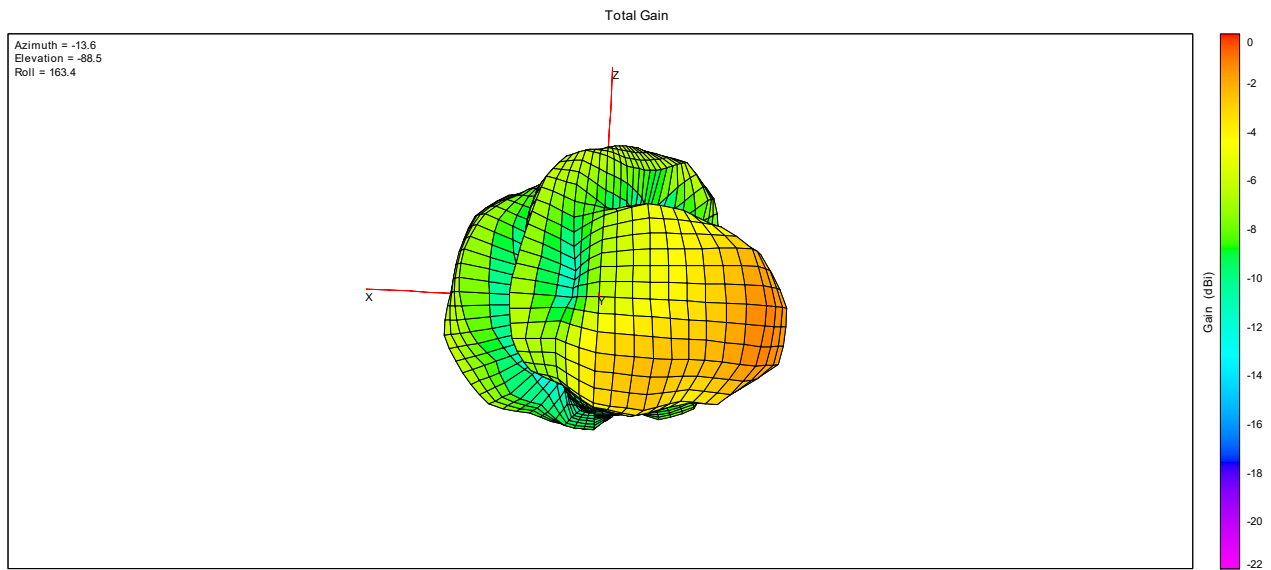


Phi=90°

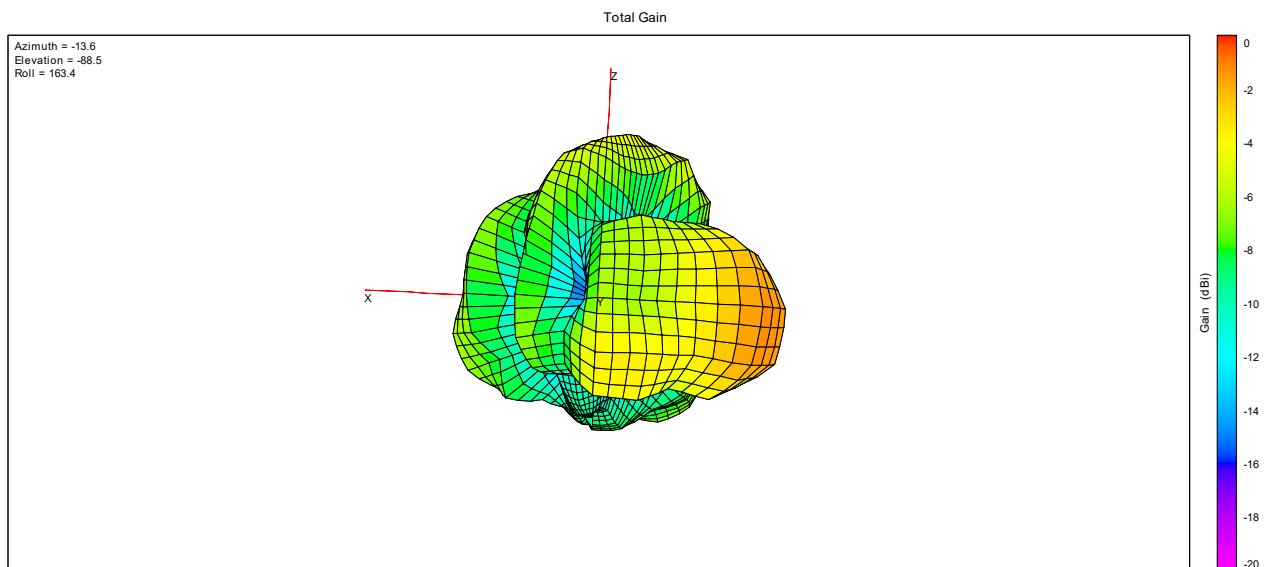


## 2. 3D Radiation Pattern





2450MHz



2500MHz



## Annex D General Information

### 1.1 Identification of the Responsible Testing Laboratory

|                     |                                                                                                                                          |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Laboratory Name:    | Shenzhen Morlab Communications Technology Co., Ltd.                                                                                      |
| Laboratory Address: | FL.1-3, Building A, FeiYang Science Park, No.8<br>LongChang Road, Block67, BaoAn District, ShenZhen ,<br>GuangDong Province, P. R. China |
| Telephone:          | +86 755 36698555                                                                                                                         |
| Facsimile:          | +86 755 36698525                                                                                                                         |

### 1.2 Identification of the Responsible Testing Location

|          |                                                                                                                                          |
|----------|------------------------------------------------------------------------------------------------------------------------------------------|
| Name:    | Shenzhen Morlab Communications Technology Co., Ltd.                                                                                      |
| Address: | FL.1-3, Building A, FeiYang Science Park, No.8<br>LongChang Road, Block67, BaoAn District, ShenZhen ,<br>GuangDong Province, P. R. China |

### 1.3 Test Equipments Utilized

| No. | Equipement Name            | Serial No.   | Type                                           | Manufacturer | Cal.Date   | Cal.Due Date |
|-----|----------------------------|--------------|------------------------------------------------|--------------|------------|--------------|
| 1   | Network Analyzer           | MY46110140   | E5071C                                         | Agilent      | 2022.07.04 | 2023.07.03   |
| 2   | OTA Chamber                | TJ2235-Q1793 | AMS-8923<br>-150                               | ETS          | 2022.11.30 | 2025.11.29   |
| 3   | Antenna Measurement System | 1685         | EMQuest<br>EMQ-100<br>V 1.13<br>Build<br>21267 | ETS          | N/A        | N/A          |

————— END OF REPORT —————