



ANTENNA PASSIVE TEST REPORT

| | |
|---------------------------------|-----------------------------------|
| Application No. | SEWM2303000091OA |
| Applicant | Xinye lighting enterptise limited |
| Manufacturer | Taizhou Xinye Technology Co Ltd |
| Product Name | PCB Antenna |
| Model No | BLE_LED |
| Standards | IEEE Std 149™ -2021 |
| Date Initial Sample(s) Received | 2023.02.29 |
| Testing Start Date | 2023.03.29 |
| Testing Finish Date | 2023.03.29 |
| Report Issue Date | 2023.04.10 |

Comments/ Conclusion: The configuration tested complied to the certification requirements specified in this report.

Leno Shi

Leno Shi
Prepared by

Caleb Gao

Caleb Gao
Reviewed by

Panta Sun

Panta Sun
Approved by

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.



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REVISION HISTORY

| Report No. | Version | Date | Memo |
|--------------------|---------|------------|-----------------------------|
| SEWM2303000091OA01 | 01 | 2023/04/10 | The final version of report |



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1. General Information

1.1 Details of Client

| | |
|--------------|---|
| Applicant | Xinye lighting enterptise limited |
| Address: | No. 371, Baihutang, Zhenxi Village, Toutuo Town, Huangyan District, Taizhou, Zhejiang, China. |
| Manufacturer | Taizhou Xinye Technology Co Ltd |
| Address: | No. 371, Baihutang, Zhenxi Village, Toutuo Town, Huangyan District, Taizhou, Zhejiang, China. |

1.2 Test Location

| | |
|-----------|--|
| Company | SGS-CSTC Standards Technical Service (Suzhou) Co., Ltd. |
| Address | South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone |
| Post Code | 215000 |
| Telephone | +86(0)512-62990300 |
| Fax | +86(0)512-62990300 |



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1.3 General Description of EUT

| | |
|----------------------|---------------------------------|
| Device Description: | PCB Antenna |
| Device Manufacturer: | Taizhou Xinye Technology Co Ltd |
| Device Model: | BLE_LED |
| Hardware Version: | V1.13 |
| Software Version: | V5.0 |

1.4 Test Procedure

Testing is performed according to the IEEE Std 149™ -2021

1.5 Laboratory Environment

| | | |
|-------------------|-------------------------|---------|
| Temperature | Min. =19°C, Max. = 25°C | |
| Relative humidity | Min. =40%, Max. =72% | |
| Shield effect | 0.7-6GHz | > 100dB |
| Ground resistance | <0.5Ω | |



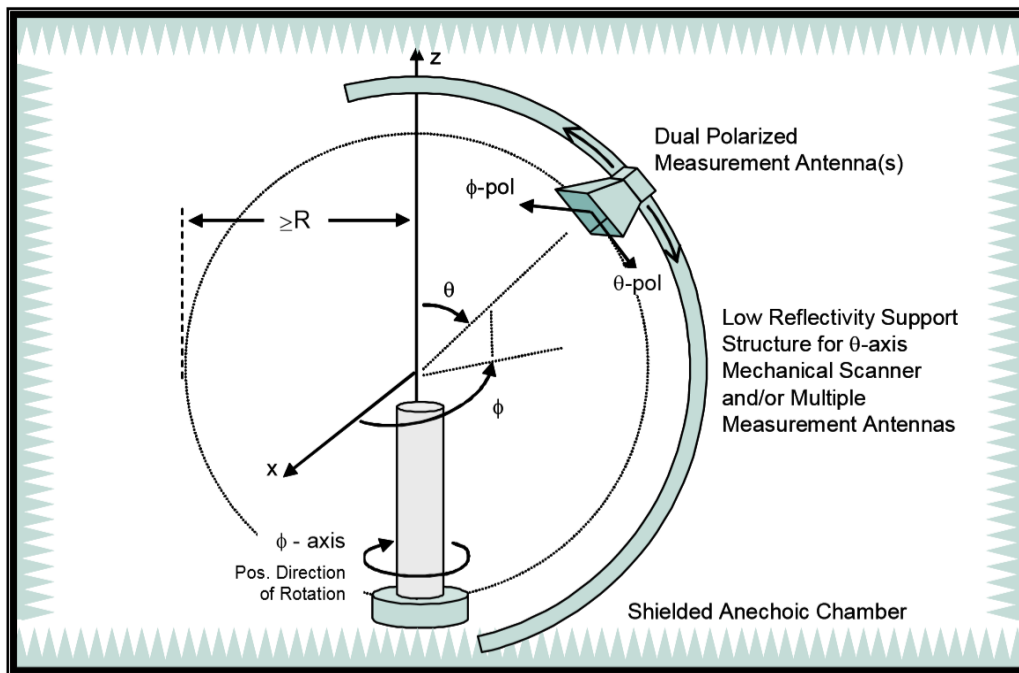
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2. OTA Measurements System Configuration

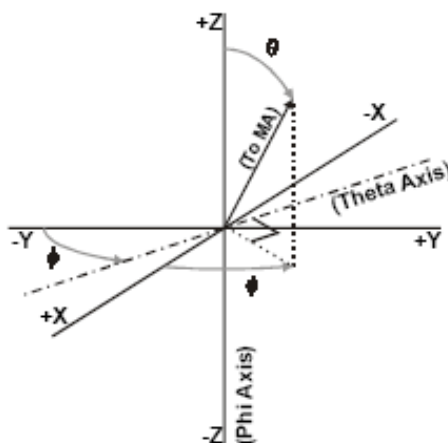
2.1 Test Configuration

Conical-Cut method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test (EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 1.5m



2.2 Test Measurement

Spherical coordinate system



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3. Test Equipment List

| Type of Equipment | Model Number | Manufacture | Calibration Date | Valid Period |
|-------------------------------------|--|-------------------|------------------|--------------|
| Network Analyzer | ZNB8 S/N 103535 | R&S | 2023-02-06 | 2024-02-05 |
| Switch Control System | OSP 130 S/N 100358 | R&S | N/A | N/A |
| MAPS Controller | 2090 S/N 114576 | ETS-Lindgren L.P. | N/A | N/A |
| Test Software | EMQuest™ REV 1.14 Build 31654 | ETS-Lindgren L.P | N/A | N/A |
| Full Anechoic Wireless Test chamber | ETS-Lindgren AMS- 8923 CT000596-1149 | ETS-Lindgren L.P | N/A | N/A |



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4. Measurement Uncertainty

| Item | 617- 698MHz (dB) | 699- 798MHz (dB) | 814- 894MHz (dB) | 1695- 1780MHz (dB) | 1850- 2020MHz (dB) | 2300- 2800MHz (dB) | 3300- 3800MHz (dB) | 5150- 5925MHz (dB) |
|---|------------------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Gain | 0.75 | 0.9 | 0.74 | 0.84 | 0.83 | 0.9 | 0.84 | 0.86 |
| Efficiency | 0.75 | 0.9 | 0.74 | 0.84 | 0.83 | 0.9 | 0.84 | 0.86 |
| Measurement Uncertainty (95% CONFIDENCE INTERVAL) K=2 | | | | | | | | |

5. Test Results

5.1 Antenna

| Frequency (MHz) | Gain (dBi) | Efficiency (dB) | Efficiency (%) |
|-----------------|------------|-----------------|----------------|
| 2400 | -7.53 | -11.49 | 7.09 |
| 2410 | -7.55 | -11.61 | 6.90 |
| 2420 | -8.08 | -11.96 | 6.36 |
| 2430 | -8.42 | -12.28 | 5.91 |
| 2440 | -8.36 | -12.24 | 5.98 |
| 2450 | -8.13 | -12.05 | 6.24 |
| 2460 | -7.67 | -11.66 | 6.82 |
| 2470 | -7.67 | -11.74 | 6.69 |
| 2480 | -7.97 | -12.17 | 6.07 |
| 2490 | -8.23 | -12.37 | 5.80 |
| 2500 | -8.36 | -12.47 | 5.66 |



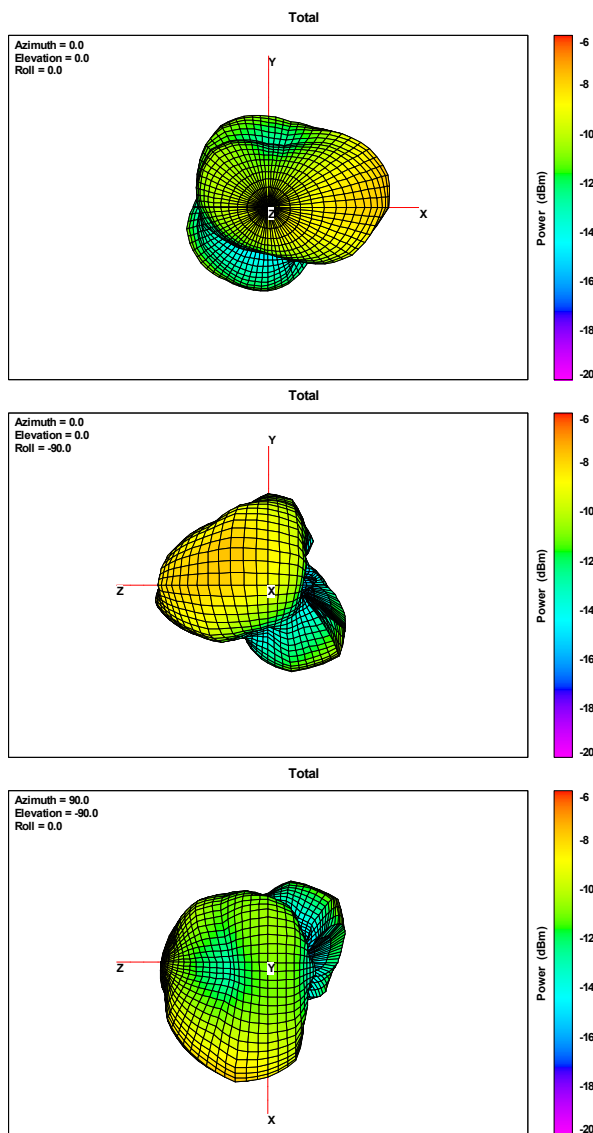
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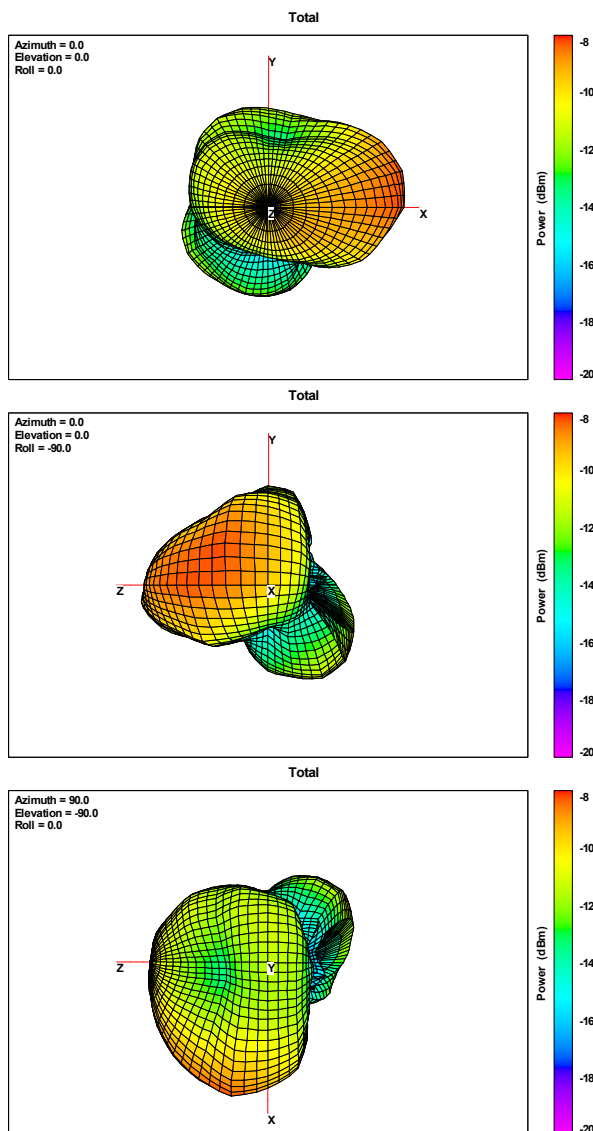
6. 3-D Antenna Pattern

6.1 Antenna

6.1.1 2400MHz



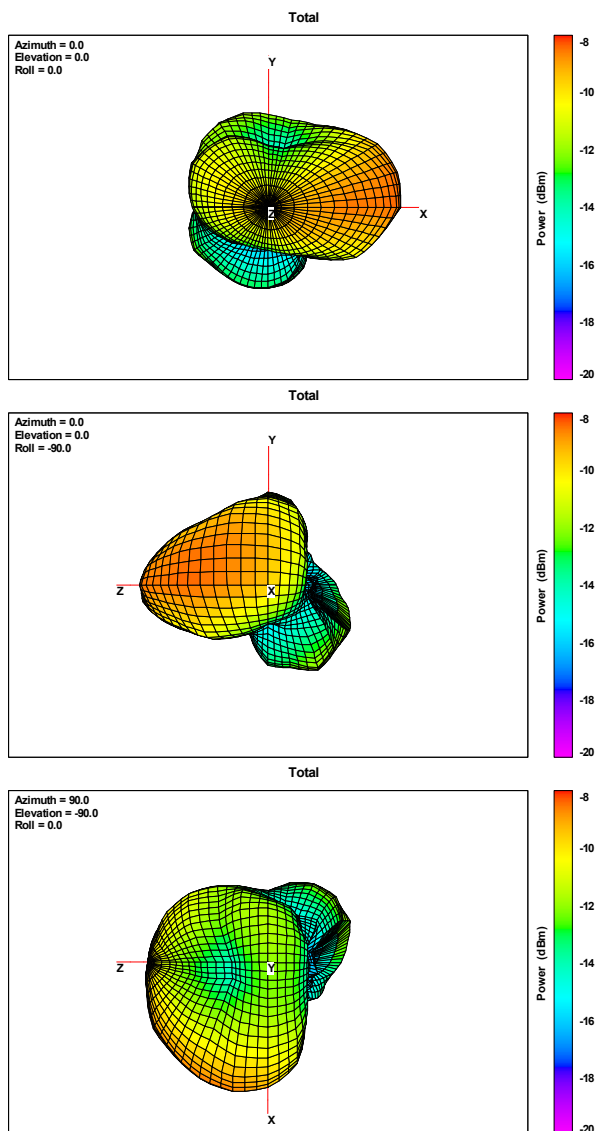
6.1.2 2450MHz



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6.1.3 2500MHz



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7. EUT and Test Configuration

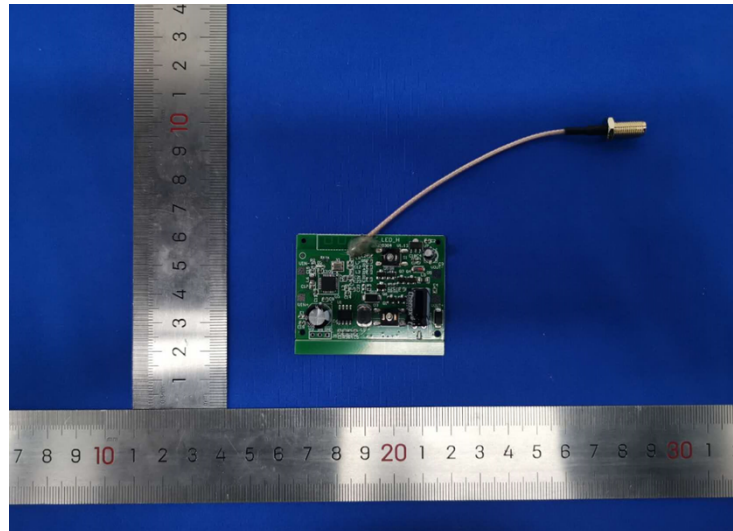
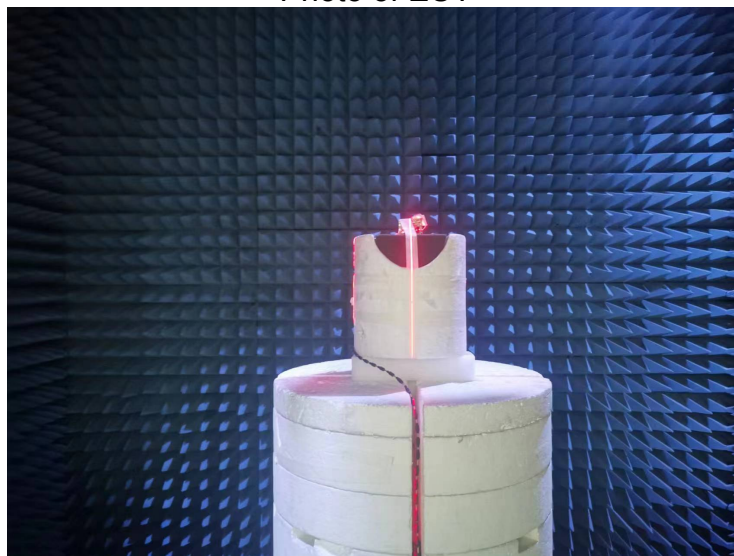


Photo of EUT



Free Space View of EUT

END REPORT

