



SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/0 Aug01,2022

Report No.: SZCR230500135504

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ANTENNA PASSIVE TEST REPORT

Application No. SZCR2305001355ME
Applicant Shenzhen Hingmed Medical Instrument Co., Ltd.
Manufacturer Shenzhen Hingmed Medical Instrument Co., Ltd.
Product Name Oximeter
Model No. HM-ST30Pro
Standards ANSI/IEEE Std 149-2008
Date Initial Sample(s) Received 2023-05-08
Testing Start Date 2023-10-16
Testing Finish Date 2023-10-17
Report Issue Date 2023-10-17

*In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Kenx. Xu

Kenx Xu
EMC Laboratory Manager



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Shenzhen Branch EMC Laboratory

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| Revision Record | | | | |
|-----------------|---------|------------|----------|----------|
| Version | Chapter | Date | Modifier | Remark |
| 01 | | 2023-10-17 | | Original |
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|--------------------------|--|----------------------|--|--|
| Authorized for issue by: | | | | |
| | | Mark Mao | | |
| | | Reviewed by Mark Mao | | |
| | | Eric Fu | | |
| | | Approved by Eric Fu | | |



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2 Revision Version

| Report No. | Version | Date | Memo |
|------------------|---------|-------|----------------------------|
| SZCR2305001355ME | 00 | 10/17 | Initial creation of report |



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4 General Information

4.1 Testing Laboratory

| | |
|----------|---|
| Test Lab | SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch |
| Address | No.1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 |
| Contact | Mark Mao |
| Tel. | +86 (0) 755 2532 8628 |
| Fax | +86 (0) 755 2671 0594 |
| E-mail | Mark.Mao@sgs.com |

4.2 Details of Applicant

| | |
|---------------------|---|
| Applicant's Name | Shenzhen Hingmed Medical Instrument Co., Ltd. |
| Applicant's Address | 4th Floor, Zhonghangfeixiang Building, NO. 371, Guangshen Road, Baoan District, Shenzhen, 518102, China |
| Contact | Huang yongban |
| Tel. | +86755234206946 |
| E-mail | hyb@hingmed.com |

4.3 Details of Manufacturer

| | |
|------------------------|---|
| Manufacturer's Name | Shenzhen Hingmed Medical Instrument Co., Ltd. |
| Manufacturer's Address | 4th Floor, Zhonghangfeixiang Building, NO. 371, Guangshen Road, Baoan District, Shenzhen, 518102, China |
| Contact | Huang yongban |
| Tel. | +86755234206946 |
| E-mail | hyb@hingmed.com |

4.4 General Description of EUT

| | |
|----------------------|---|
| Device Description: | finger oximeter |
| Device Manufacturer: | Shenzhen Hingmed Medical Instrument Co., Ltd. |
| Device Model: | HM-ST30Pro |
| Hardware Version: | N/A |
| Software Version: | N/A |
| S/N: | N/A |



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4.5 Test Procedure

Testing is performed according to the **ANSI/IEEE Std 149-2008**.

4.6 Test Specification

| Identity | Document Title |
|------------------------|--|
| ANSI/IEEE Std 149-2008 | IEEE Standard Test Procedures for Antennas |

4.7 Laboratory Environment

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



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4.8 Test Location

All tests were performed at:

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No tests were sub-contracted.

4.9 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

4.10 Deviation from Standards

None

4.11 Abnormalities from Standard Conditions

None



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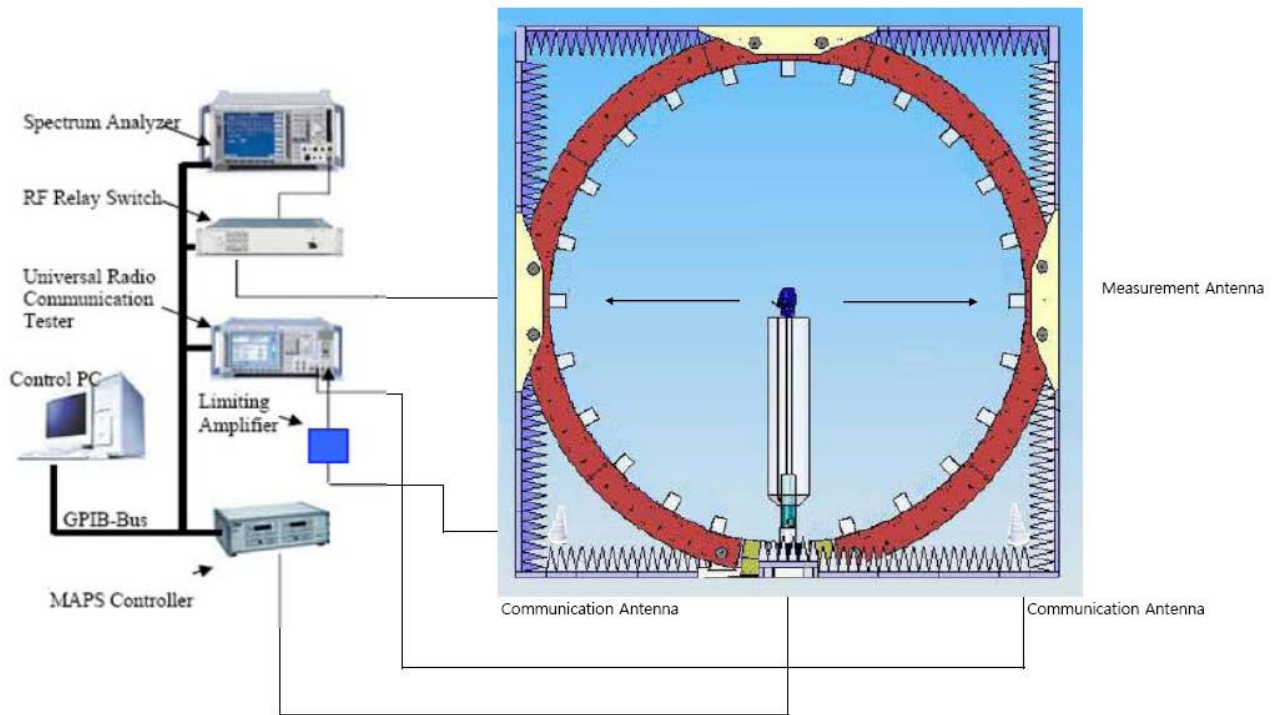
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5 OTA Measurements System Configuration

5.1 Test Configuration

Great-Circle-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 5m



F-1. OTA Measurement System Configuration



6 Equipment List

| Type of Equipment | Model Number | Manufacture | Calibration Date | Valid Period |
|---|----------------------------|-------------------|------------------|--------------|
| Network Analyzer | E5071C S/N MY46523591 | Keysight | 2023/2/16 | 2024/2/15 |
| Quad-Ridge Horn Antenna 700 MHz-10 GHz | EMCO 3164-08 S/N 161915 | ETS-Lindgren L.P. | N/A | N/A |
| MAPS Controller | EMCENTER S/N 160485 | ETS-Lindgren L.P. | N/A | N/A |



7 Measurement Uncertainty

| | |
|---|--------------------|
| Item | 2400-2500 MHz (dB) |
| Gain | 0.88 |
| Efficiency | 0.88 |
| Measurement Uncertainty (95% CONFIDENCE INTERVAL) K=2 | |



8 Test Result

8.1 Test summary

| product | Maximum Gain Data | | | |
|------------|-------------------|-----------------|----------------|------------|
| | Frequency (MHz) | Efficiency (dB) | Efficiency (%) | Gain (dBi) |
| BT antenna | 2500 | -19.86 | 1.03 | -7.16 |

8.2 BT Antenna Test Results

| Frequency (MHz) | Efficiency (dB) | Efficiency (%) | Gain (dBi) |
|-----------------|-----------------|----------------|------------|
| 2400 | -19.14 | 1.22 | -8.69 |
| 2402 | -19.29 | 1.18 | -8.25 |
| 2405 | -19.37 | 1.16 | -8.01 |
| 2410 | -19.47 | 1.13 | -8.07 |
| 2415 | -19.68 | 1.08 | -8.73 |
| 2420 | -19.54 | 1.11 | -9.26 |
| 2425 | -19.67 | 1.08 | -8.85 |
| 2430 | -19.80 | 1.05 | -8.70 |
| 2435 | -19.92 | 1.02 | -8.81 |
| 2440 | -20.06 | 0.99 | -9.48 |
| 2441 | -20.03 | 0.99 | -9.66 |
| 2445 | -19.85 | 1.04 | -9.37 |
| 2450 | -19.78 | 1.05 | -8.36 |
| 2455 | -19.64 | 1.09 | -7.77 |
| 2460 | -19.74 | 1.06 | -7.40 |
| 2465 | -19.84 | 1.04 | -7.68 |
| 2470 | -20.04 | 0.99 | -7.37 |
| 2475 | -20.25 | 0.94 | -7.32 |
| 2480 | -20.42 | 0.91 | -7.68 |
| 2482 | -20.44 | 0.90 | -8.02 |
| 2485 | -20.48 | 0.89 | -8.63 |
| 2490 | -20.34 | 0.93 | -9.52 |
| 2495 | -20.04 | 0.99 | -8.53 |
| 2500 | -19.86 | 1.03 | -7.16 |



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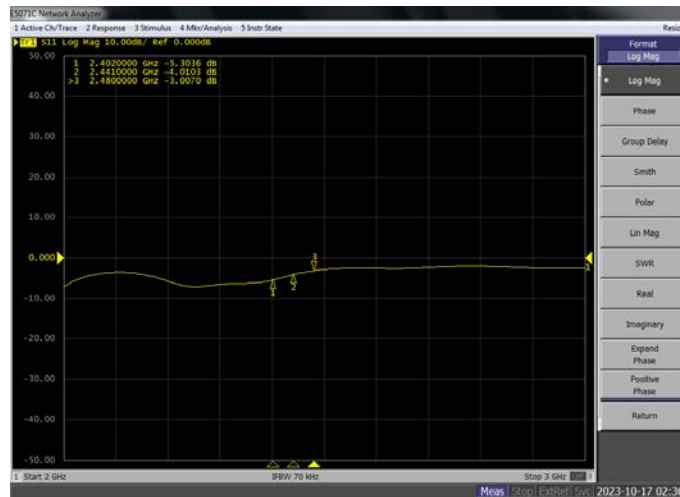
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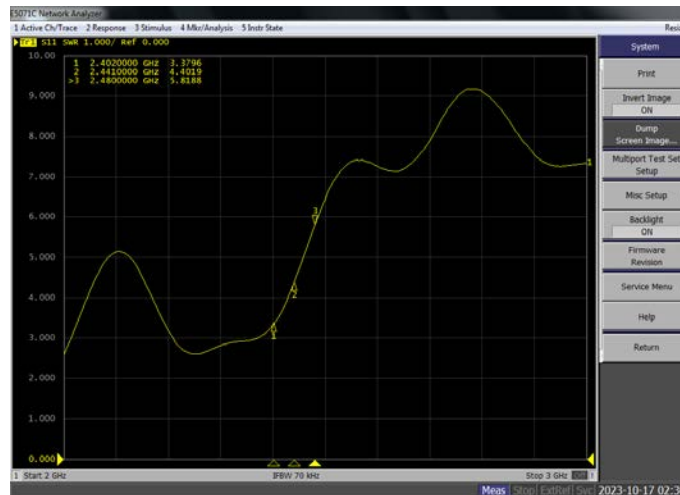
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9 Pattern Plots

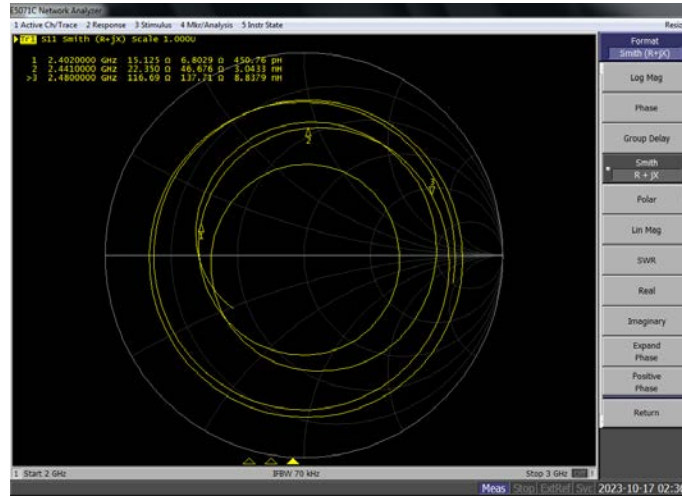
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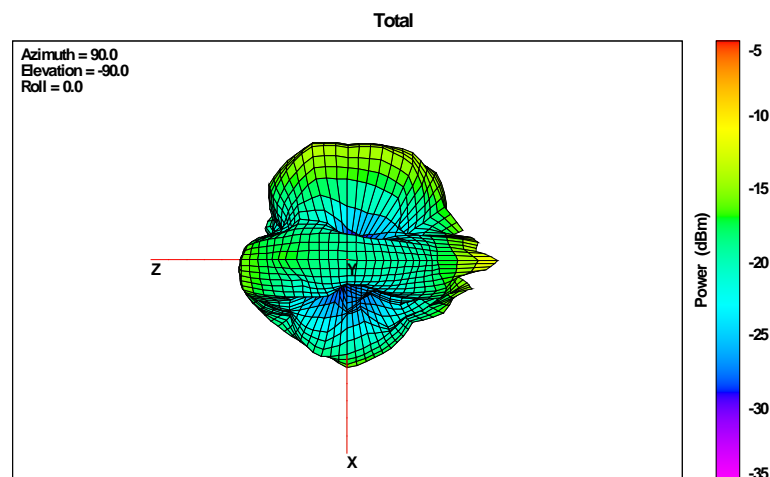
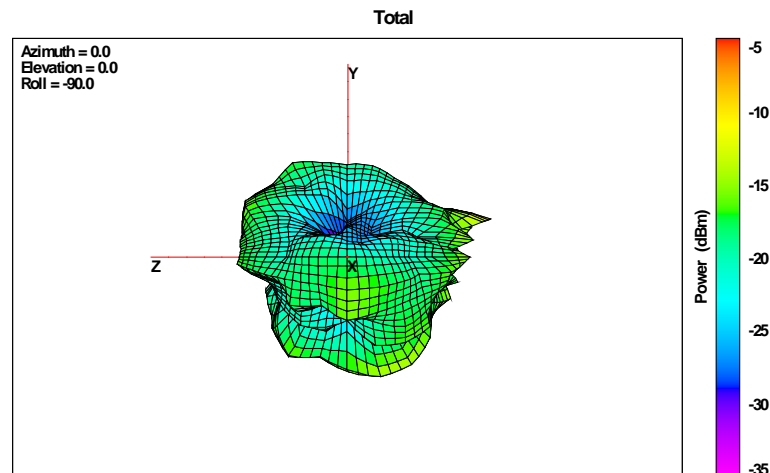
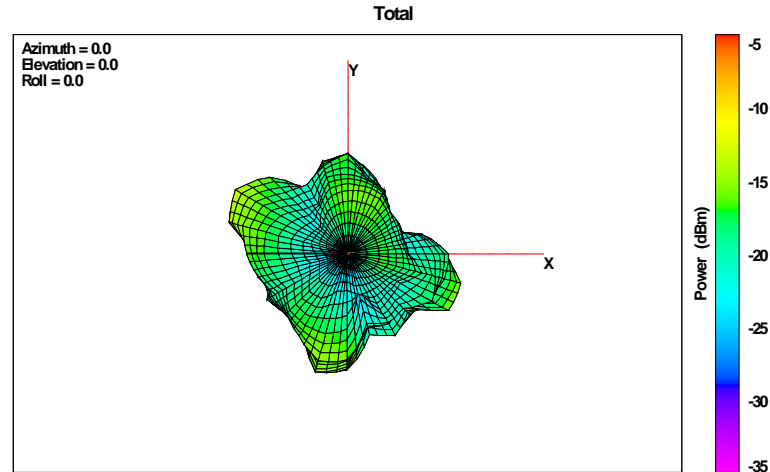
VSWR



Stimulus



10 3-D Antenna Pattern

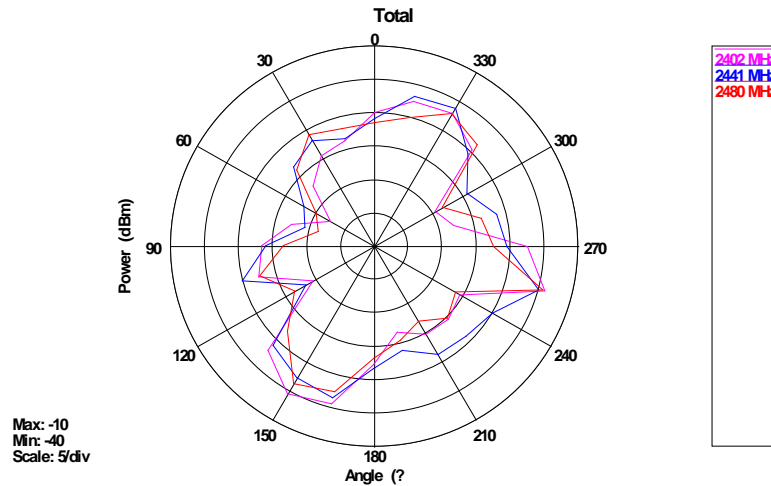


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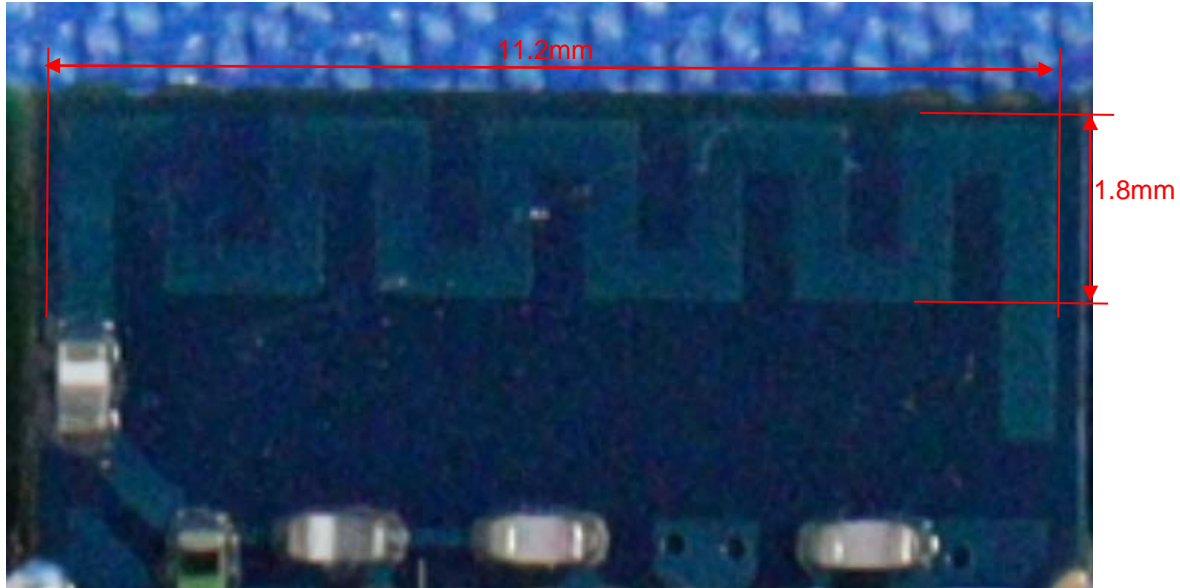
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11 The EUT and Test Configuration

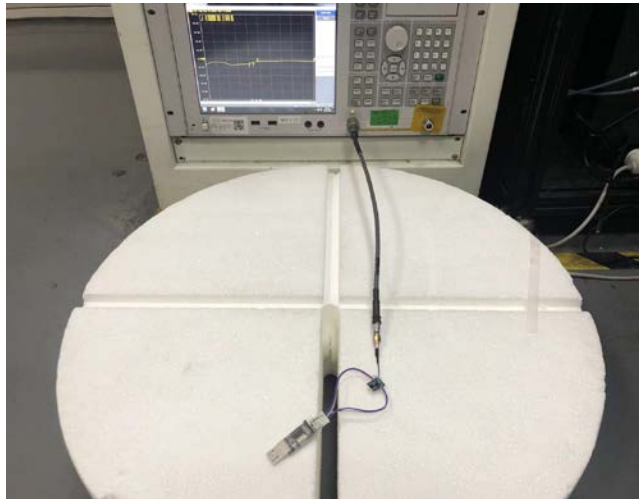
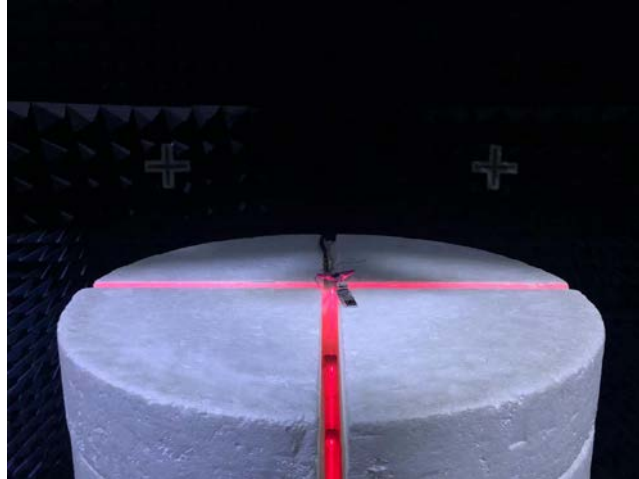
Size of the Antenna



Size of the Antenna in the EUT



Free Space View



- End of the Report -

