



3D Antenna Measurement Summary Report

REPORT NO.: ORBHJP-WTW-P21120333 R1

MODEL NAME: DW14xx

TESTED DATE: 2022.3.9

ISSUED: 2022.5.6

APPLICANT: Fossil Group, Inc.

ADDRESS : 901 S. Central Expressway, Richardson, Tx 75080, USA

MANUFACTURER: Fossil Group, Inc.

ISSUED BY: Bureau Veritas Consumer Products Service (H.K.) Ltd.,
Taoyuan Branch Lin Kou Laboratories.

ADDRESS: Bureau Veritas Consumer Products Service(Hong Kong)
Limited, Taoyuan Branch Mobile Communication Laboratory

TEST LOCATION: No.19, Hwa Ya 2nd Rd., Kwei shan Dist., Taoyuan City,
Taiwan (R.O.C)

This report should not be used by the client to claim
product certification, approval, or endorsement by TAF,
CTIA or any government agencies.



Authorized
Test Lab
Lab Code: 20090309-00

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RELEASE CONTROL RECORD

| REPORT NO. | REASON FOR CHANGE | DATE ISSUED |
|-------------------------|--------------------------------|-------------|
| ORBHJP-WTW-P21120333 | Original release | 2022.3.16 |
| ORBHJP-WTW-P21120333 R1 | Correct Issued LAB information | 2022.5.6 |
| | | |

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GENERAL INFORMATION

| | |
|----------------------|--------------------|
| APPLICANT: | Fossil Group, Inc. |
| MANUFACTURER: | Fossil Group, Inc. |
| MODEL NAME: | DW14xx |

Test Standard: ANSI/IEEE Std. 149 1979.

PREPARED BY : Leo Chen, **DATE :** 2022.5.6
Leo Chen / Engineer

APPROVED BY : Johnny Liu, **DATE :** 2022.5.6
Johnny Liu / Supervisor

1. Test Equipment List

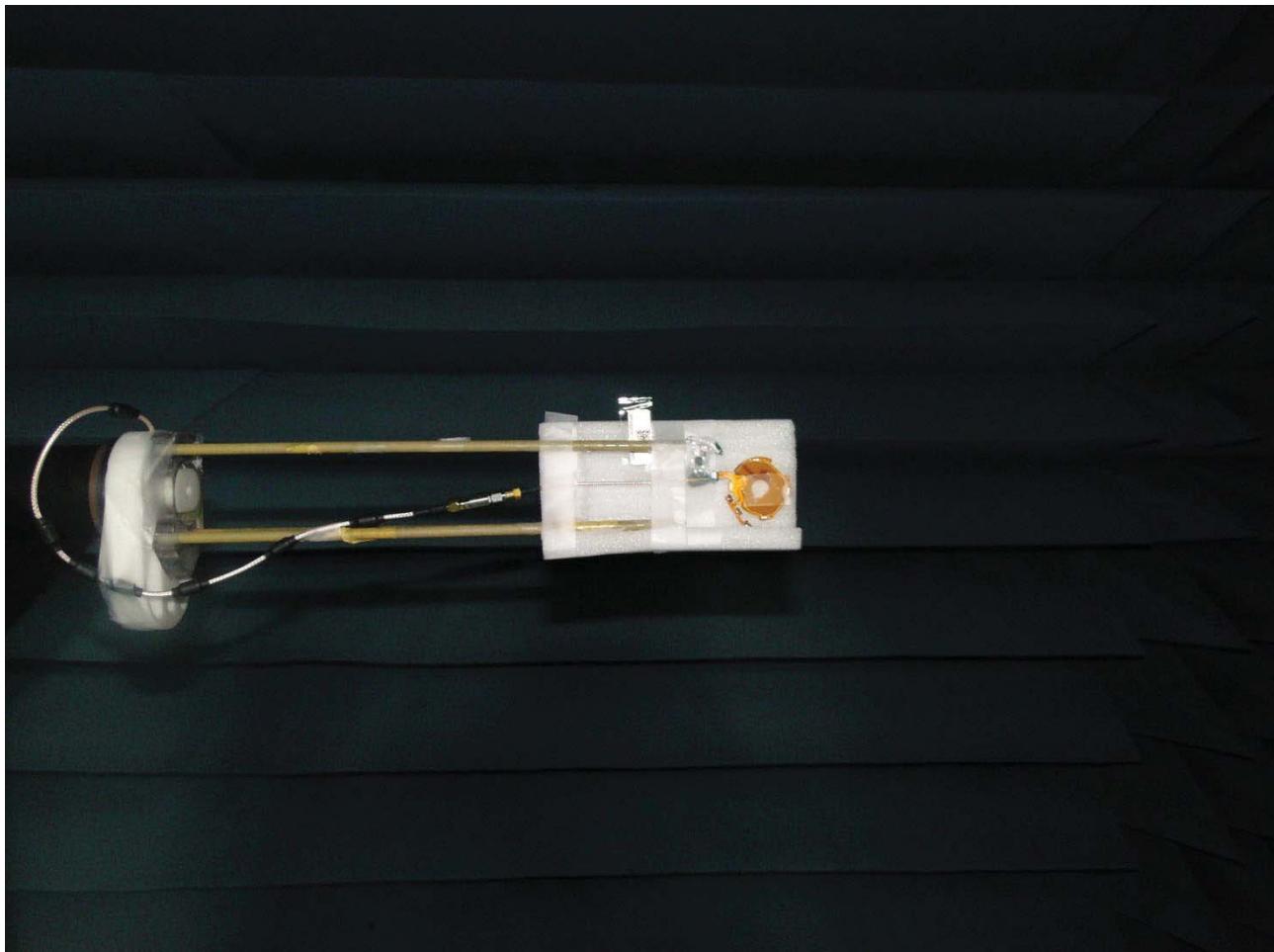
| TYPE OF EQUIPMENT | MODEL NUMBER | SERIAL NUMBER | CALIBRATION DUE DATE |
|-------------------------------|---------------|---------------|----------------------|
| ETS Anechoic Chamber | AMS-8500 | N/A | N/A |
| Multi-Axis Positioning System | ETS 2090-OPTI | N/A | N/A |
| Horn Antenna | ETS 3164-06 | N/A | N/A |
| Switch Control | Agilent 3499A | N/A | N/A |
| Network Analyzer | E5071C | MY46104190 | 2022/5/30 |

2. Measurement Uncertainty

Expanded Uncertainty for Measurement (k=2 or 95.45% Confidence Level) at Passive antenna test over frequency range:.

| FREQUENCY RANGE | MEASUREMENT UNCERTAINTY |
|-----------------|-------------------------|
| 780~2200 MHz | 1.57 dB |
| 2200~3000 MHz | 1.75 dB |
| 3000~6000 MHz | 4.17 dB |

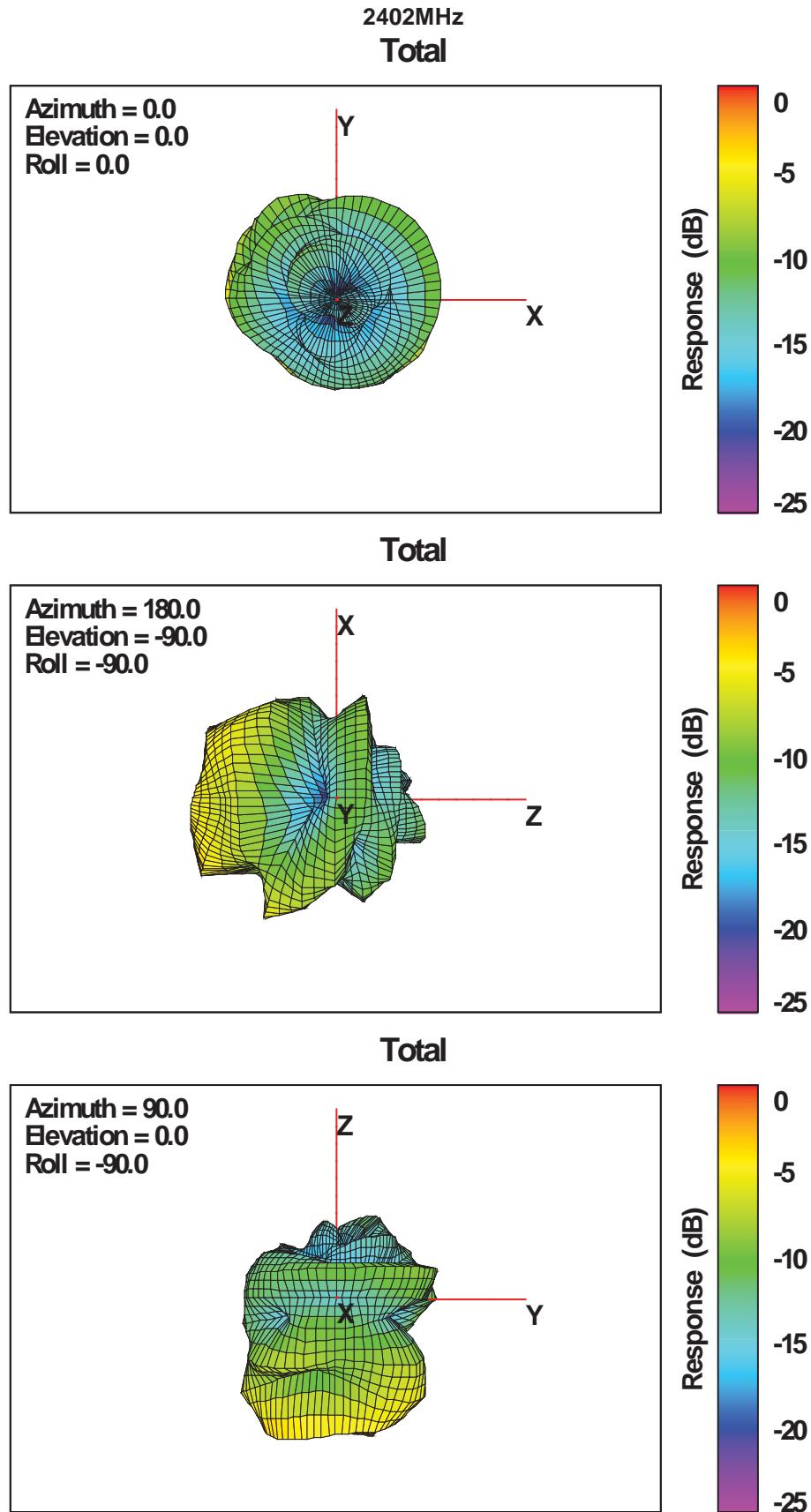
3. Testing Setup Photo



4. Antenna Radiation Performance

| Frequency | 2402 | 2408 | 2480 |
|--------------------|-------|-------|-------|
| Peak Gain (dBi) | -2.51 | -1.54 | -1.15 |
| Average Gain (dBi) | -9.76 | -8.68 | -7.84 |
| Efficiency (%) | 10.57 | 13.56 | 16.44 |

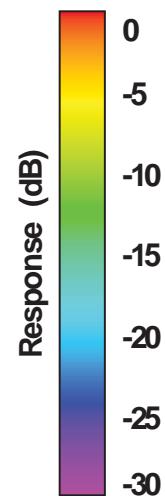
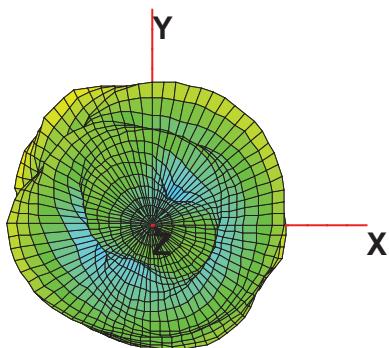
5. 3D Antenna Patterns



2440MHz

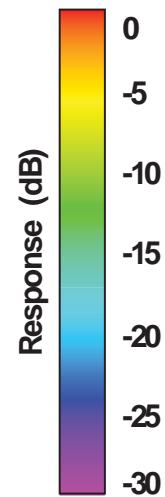
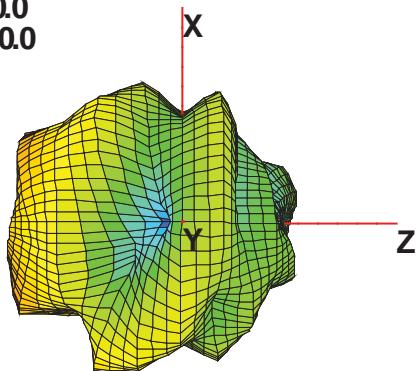
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Roll = 0.0



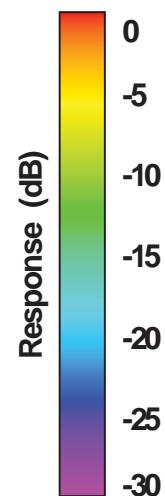
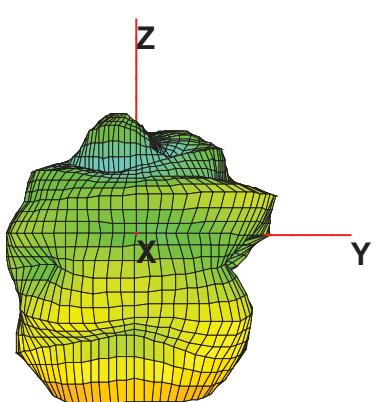
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Total

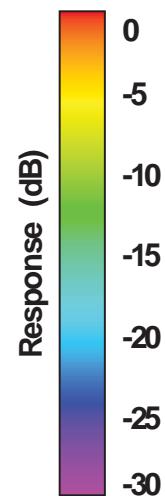
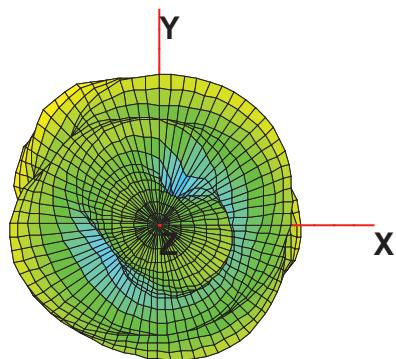
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2480MHz

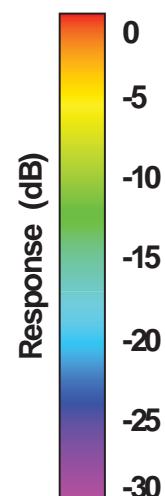
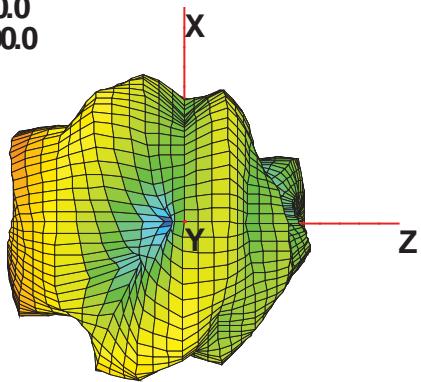
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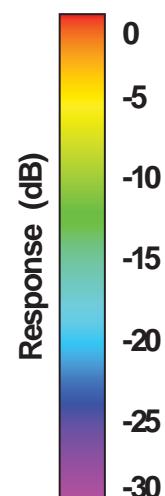
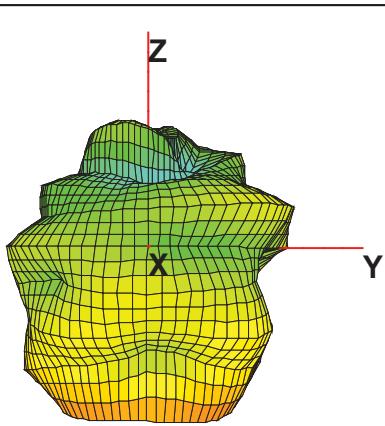
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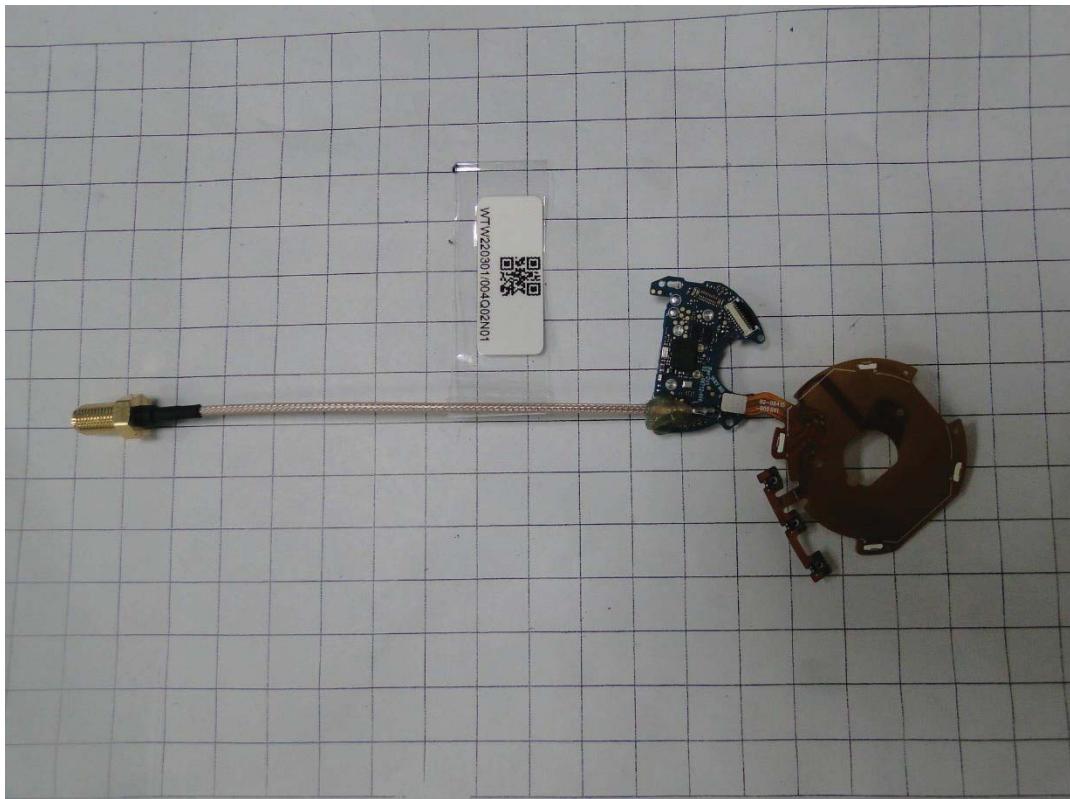


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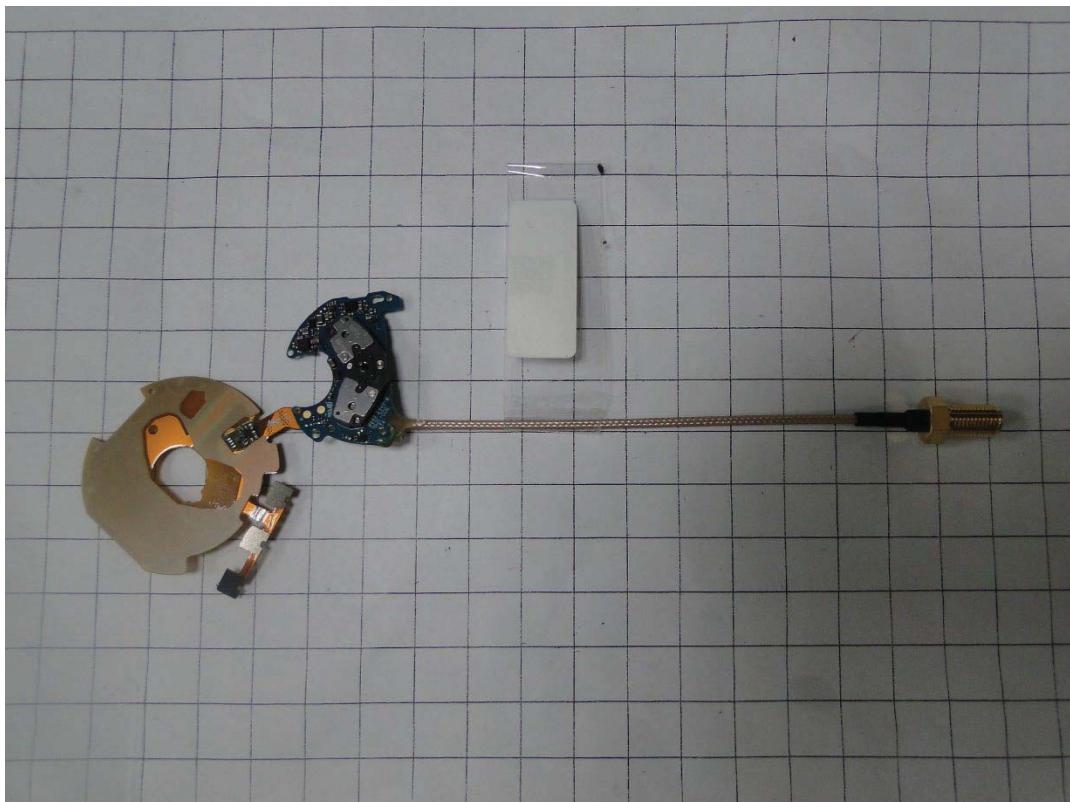
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Roll = -90.0



APPENDIX. DUT photographs



DUT(Front)



DUT (Rear)