

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                   |                                      |                                          |                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Prüfbericht-Nr.:</b><br>Test report no.:                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>CN24I9CC 002</b>                                                                                                                                                                                                                                                                                                               | <b>Auftrags-Nr.:</b><br>Order no.:   | <b>168501938</b>                         | Seite 1 von 17<br>Page 1 of 17                                                        |
| <b>Kunden-Referenz-Nr.:</b><br>Client reference no.:                                                                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                                                                                                                                                                                               | <b>Auftragsdatum:</b><br>Order date: | 2024-08-27                               |                                                                                       |
| <b>Auftraggeber:</b><br>Client:                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Shining 3D Tech Co., Ltd.</b><br>No. 1398, Xiangbin Road, Wenyan, Xiaoshan, Hangzhou, Zhejiang, P.R. China                                                                                                                                                                                                                     |                                      |                                          |                                                                                       |
| <b>Prüfgegenstand:</b><br>Test item:                                                                                                                                                                                                                                                                                                                                                                                                                                 | Wi-Fi & Bluetooth Module                                                                                                                                                                                                                                                                                                          |                                      |                                          |                                                                                       |
| <b>Bezeichnung / Typ-Nr.:</b><br>Identification / Type no.:                                                                                                                                                                                                                                                                                                                                                                                                          | FCE863R                                                                                                                                                                                                                                                                                                                           |                                      |                                          |                                                                                       |
| <b>Auftrags-Inhalt:</b><br>Order content:                                                                                                                                                                                                                                                                                                                                                                                                                            | Test Report                                                                                                                                                                                                                                                                                                                       |                                      |                                          |                                                                                       |
| <b>Prüfgrundlage:</b><br>Test specification:                                                                                                                                                                                                                                                                                                                                                                                                                         | CFR47 FCC Part 15: Subpart E Section 15.407<br>RSS-247 Issue 3 August 2023                                                                                                                                                                                                                                                        |                                      |                                          |                                                                                       |
| <b>Wareneingangsdatum:</b><br>Date of sample receipt:                                                                                                                                                                                                                                                                                                                                                                                                                | 2024-08-27                                                                                                                                                                                                                                                                                                                        | Please refer to Photo Document       |                                          |                                                                                       |
| <b>Prüfmuster-Nr.:</b><br>Test sample no:                                                                                                                                                                                                                                                                                                                                                                                                                            | A003796975-001<br>A003795371-001~003                                                                                                                                                                                                                                                                                              |                                      |                                          |                                                                                       |
| <b>Prüfzeitraum:</b><br>Testing period:                                                                                                                                                                                                                                                                                                                                                                                                                              | 2024-08-30 - 2024-09-24                                                                                                                                                                                                                                                                                                           |                                      |                                          |                                                                                       |
| <b>Ort der Prüfung:</b><br>Place of testing:                                                                                                                                                                                                                                                                                                                                                                                                                         | Refer to section 2.1                                                                                                                                                                                                                                                                                                              |                                      |                                          |                                                                                       |
| <b>Prüflaboratorium:</b><br>Testing laboratory:                                                                                                                                                                                                                                                                                                                                                                                                                      | TÜV Rheinland<br>(Shenzhen) Co., Ltd.                                                                                                                                                                                                                                                                                             |                                      |                                          |                                                                                       |
| <b>Prüfergebnis*:</b><br>Test result*:                                                                                                                                                                                                                                                                                                                                                                                                                               | Pass                                                                                                                                                                                                                                                                                                                              |                                      |                                          |                                                                                       |
| <b>geprüft von:</b><br>tested by:                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                |                                      | <b>genehmigt von:</b><br>authorized by:  |  |
| <b>Datum:</b><br>Date:                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2024-10-17                                                                                                                                                                                                                                                                                                                        | Signed by: Bell Hu                   | <b>Ausstellungsdatum:</b><br>Issue date: | 2024-10-17<br>Signed by: Lin Lin                                                      |
| <b>Stellung / Position:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                          | Sachverständige(r)/Expert                                                                                                                                                                                                                                                                                                         |                                      | <b>Stellung / Position:</b>              | Sachverständige(r)/Expert                                                             |
| <b>Sonstiges / Other:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                            | FCC ID: 2AMG4-EINSTAR3, IC: 24652-EINSTAR3, HVIN: FCE863R,<br>PMN: FCE863R, HMN: 3D Scanner<br>This report is under FCC C2PC application and ISED C4PC for the module integrated into the<br>Host (Product:3D Scanner, Model: EinScan Libre, Manufacturer: Shining 3D Tech Co., Ltd.), the<br>antennas changed and RSE re-tested. |                                      |                                          |                                                                                       |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br>Condition of the test item at delivery:                                                                                                                                                                                                                                                                                                                                                                      | Prüfmuster vollständig und unbeschädigt<br>Test item complete and undamaged                                                                                                                                                                                                                                                       |                                      |                                          |                                                                                       |
| * Legende:                                                                                                                                                                                                                                                                                                                                                                                                                                                           | P(ass) = entspricht o.g. Prüfgrundlage(n)    F(ail) = entspricht nicht o.g. Prüfgrundlage(n)    N/A = nicht anwendbar    N/T = nicht getestet                                                                                                                                                                                     |                                      |                                          |                                                                                       |
| * Legend:                                                                                                                                                                                                                                                                                                                                                                                                                                                            | P(ass) = passed a.m. test specification(s)    F(ail) = failed a.m. test specification(s)    N/A = not applicable    N/T = not tested                                                                                                                                                                                              |                                      |                                          |                                                                                       |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i> |                                                                                                                                                                                                                                                                                                                                   |                                      |                                          |                                                                                       |

V05

**Prüfbericht-Nr.: CN24I9CC 002**  
Test report no.:

Seite 2 von 17  
Page 2 of 17

**Anmerkungen**  
*Remarks*

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <p>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.</p> <p>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</p> <p><i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i></p>                                                                                                                                                              |
| 2 | <p>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben.</p> <p><i>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.</i></p>                                                                                      |
| 3 | <p>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben.</p> <p>Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</p> <p><i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i></p> <p><i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 4 | <p>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</p> <p><i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i></p> |

**Prüfbericht - Nr.:** CN24I9CC 002  
*Test Report No.:*

Seite 3 von 17  
Page 3 of 17

## ***Test Summary***

**5.1.1 ANTENNA REQUIREMENT**

*RESULT: Pass*

**5.1.2 RADIATED SPURIOUS EMISSION**

*RESULT: Pass*

**5.1.3 AC CONDUCTED EMISSION**

*RESULT: Pass*

## **Contents**

|              |                                                           |           |
|--------------|-----------------------------------------------------------|-----------|
| <b>1</b>     | <b>GENERAL REMARKS .....</b>                              | <b>5</b>  |
| <b>1.1</b>   | <b>COMPLEMENTARY MATERIALS.....</b>                       | <b>5</b>  |
| <b>2</b>     | <b>TEST SITES.....</b>                                    | <b>5</b>  |
| <b>2.1</b>   | <b>TEST FACILITIES .....</b>                              | <b>5</b>  |
| <b>2.2</b>   | <b>LIST OF TEST AND MEASUREMENT INSTRUMENTS .....</b>     | <b>6</b>  |
| <b>2.3</b>   | <b>TRACEABILITY .....</b>                                 | <b>6</b>  |
| <b>2.4</b>   | <b>CALIBRATION.....</b>                                   | <b>6</b>  |
| <b>2.5</b>   | <b>MEASUREMENT UNCERTAINTY .....</b>                      | <b>7</b>  |
| <b>2.6</b>   | <b>LOCATION OF ORIGINAL DATA .....</b>                    | <b>7</b>  |
| <b>2.7</b>   | <b>STATUS OF FACILITY USED FOR TESTING .....</b>          | <b>7</b>  |
| <b>3</b>     | <b>GENERAL PRODUCT INFORMATION .....</b>                  | <b>8</b>  |
| <b>3.1</b>   | <b>PRODUCT FUNCTION AND INTENDED USE .....</b>            | <b>8</b>  |
| <b>3.2</b>   | <b>RATINGS AND SYSTEM DETAILS.....</b>                    | <b>8</b>  |
| <b>3.3</b>   | <b>INDEPENDENT OPERATION MODES.....</b>                   | <b>10</b> |
| <b>3.4</b>   | <b>NOISE GENERATING AND NOISE SUPPRESSING PARTS .....</b> | <b>10</b> |
| <b>3.5</b>   | <b>SUBMITTED DOCUMENTS.....</b>                           | <b>10</b> |
| <b>4</b>     | <b>TEST SET-UP AND OPERATION MODES.....</b>               | <b>11</b> |
| <b>4.1</b>   | <b>PRINCIPLE OF CONFIGURATION SELECTION .....</b>         | <b>11</b> |
| <b>4.2</b>   | <b>TEST OPERATION AND TEST SOFTWARE .....</b>             | <b>11</b> |
| <b>4.3</b>   | <b>SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT .....</b>  | <b>12</b> |
| <b>4.4</b>   | <b>COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE .....</b>    | <b>12</b> |
| <b>4.5</b>   | <b>TEST SETUP DIAGRAM .....</b>                           | <b>13</b> |
| <b>5</b>     | <b>TEST RESULTS .....</b>                                 | <b>14</b> |
| <b>5.1</b>   | <b>TRANSMITTER REQUIREMENT &amp; TEST SUITES.....</b>     | <b>14</b> |
| <b>5.1.1</b> | <i>Antenna Requirement.....</i>                           | <i>14</i> |
| <b>5.1.2</b> | <i>Radiated Spurious Emission .....</i>                   | <i>15</i> |
| <b>5.1.3</b> | <i>AC Conducted Emission.....</i>                         | <i>16</i> |
| <b>6</b>     | <b>PHOTOGRAPHS OF THE TEST SET-UP .....</b>               | <b>17</b> |
| <b>7</b>     | <b>LIST OF TABLES.....</b>                                | <b>17</b> |

**Prüfbericht - Nr.: CN24I9CC 002**  
*Test Report No.:*

Seite 5 von 17  
Page 5 of 17

# 1 General Remarks

## 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of Test Set-up

Appendix B: Test Results of Wi-Fi

# 2 Test Sites

## 2.1 Test Facilities

**Shenzhen PSI Testing Co., Ltd.**

1-2F, Building 5, Yudafu Industrial Park, No. 10, Xingye West Road, Shajing Street, Bao'an District, Shenzhen, Guangdong, China 518104

A2LA Certificate Number: 6975.01

CNAS Registration Number: CNAS L19010

The tests at the test sites have been conducted under the supervision of a TÜV engineer.

## 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

| <b>Radio Spectrum Testing</b>    |                     |               |                   |                                      |
|----------------------------------|---------------------|---------------|-------------------|--------------------------------------|
| <b>Description</b>               | <b>Manufacturer</b> | <b>Model</b>  | <b>Serial No.</b> | <b>Calibrated until (DD.MM.YYYY)</b> |
| RF Control Unit                  | Tachoy              | TR1029-1      | 20220428C008      | 2024.12.18                           |
| RF Sensor Unit                   | Tachoy              | TR1029-2      | 20220428P008      | 2024.12.18                           |
| Spectrum Analyzer                | Agilent             | N9020A        | MY51281067        | 2024.12.18                           |
| Vector Signal Generator          | Agilent             | N5182A        | MY47420724        | 2024.12.18                           |
| Analog signal generator          | Agilent             | N5181A        | MY50145363        | 2024.12.18                           |
| Comprehensive Test Instrument    | Rohde&Schwarz       | CMW 500       | 145266            | 2024.12.18                           |
| <b>Unwanted Emission Testing</b> |                     |               |                   |                                      |
| <b>Description</b>               | <b>Manufacturer</b> | <b>Model</b>  | <b>Serial No.</b> | <b>Calibrated until (DD.MM.YYYY)</b> |
| Loop Antenna                     | Schwarzbeck         | FMZB 1519B    | 00128             | 2025.04.02                           |
| Bilog Antenna                    | Schwarzbeck         | VULB 9168     | 01448             | 2024.12.25                           |
| Horn Antenna                     | Schwarzbeck         | BBHA 9120 D   | 02706             | 2024.12.25                           |
| Horn Antenna                     | Schwarzbeck         | BBHA 9170     | 00946             | 2024.12.25                           |
| Test Receiver                    | Rohde&Schwarz       | ESCI 7        | 101032/003        | 2024.12.18                           |
| Spectrum Analyzer                | Rohde&Schwarz       | FSV-40N       | 101648            | 2024.12.18                           |
| Preamplifier                     | SKET                | LNPA_0118G-50 | SK2022032901      | 2024.12.18                           |
| Preamplifier                     | SKET                | LNPA_1840-50  | SK2018101801      | 2024.12.18                           |
| <b>Conducted Emission</b>        |                     |               |                   |                                      |
| <b>Description</b>               | <b>Manufacturer</b> | <b>Model</b>  | <b>Serial No.</b> | <b>Calibrated until (DD.MM.YYYY)</b> |
| Test Receiver                    | Rohde&Schwarz       | ESCI 7        | 101032/003        | 2024.12.29                           |
| L.I.S.N.                         | Rohde&Schwarz       | ENV 216       | 102282            | 2024.12.29                           |
| L.I.S.N.                         | RFT                 | NNB111        | 13835240          | 2025.05.03                           |

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

| Parameter                                              | Uncertainty (k=2) |
|--------------------------------------------------------|-------------------|
| RF output power, conducted                             | ± 0.41dB          |
| Occupied Channel Bandwidth                             | ± 2.08 %          |
| RF power density, conducted                            | ± 0.39 dB         |
| Unwanted Emissions, conducted                          | ± 0.59 dB         |
| Radiated Emission of Transmitter, valid up to 26.5 GHz | ± 4.82 dB         |
| Radiated Emission of Receiver, valid up to 26.5 GHz    | ± 4.82 dB         |

## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at 362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

## 3 General Product Information

### 3.1 Product Function and Intended Use

The product is Wi-Fi & Bluetooth module which supports 2.4GHz Wi-Fi and 5GHz Wi-Fi functions.

This report is under FCC C2PC and ISSED C4PC application for the module integration into the Host (Product:3D Scanner, Model: EinScan Libre, Manufacturer: Shining 3D Tech Co., Ltd.).

This change establishes portable category SAR conditions with antennas modified when the module integrated into the 3D Scanner.

Note: The 5250-5350MHz, 5470-5725MHz bands and Bluetooth were disabled when integrated into the 3D Scanner.

The antenna changed to accommodate the module into the product, details as below

| Items                              | Antenna information                                                                                                                                                                                               | Remark                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wi-Fi & Bluetooth Module (FCE863R) | Antenna 1/2 : (Refer to the module reports)<br>2400 MHz ~ 2483.5 MHz: 0.2 dBi<br>5150 MHz ~ 5250 MHz: -0.7 dBi<br>5250 MHz ~ 5350 MHz: -0.8 dBi<br>5470 MHz ~ 5725 MHz: -1.2 dBi<br>5725 MHz ~ 5850 MHz: -1.5 dBi | 1. It verified that, except for the antennas, there is no other change made on the module when it installed into the 3D scanner. There are no evident variations on RF conducted signals, the conducted power kept in matching with original module.<br>2. Comparing with the module antennas, the maximum gains for all current antennas get lower, thus the final EIRP will be less than the module as well.<br>3. To guarantee the compliance, the RSE and SAR re-tested.<br>4. The Bluetooth, U-NII-2A and U-NII-2C were blocked, and not open to public when integrated into the host. |
| 3D Scanner (The host product)      | Antenna 1/2: (provided by the client)<br>2400-2500MHz,5150-5850MHz: -3.0 dBi                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

For details refer to the User Manual, Technical Description and Circuit Diagram.

### 3.2 Ratings and System Details

**Table 2: Technical Specification of EUT**

| General Information of EUT | Value                    |
|----------------------------|--------------------------|
| Kind of Equipment:         | Wi-Fi & Bluetooth Module |
| Type Designation:          | FCE863R                  |
| FCC ID:                    | 2AMG4-EINSTAR3           |
| IC:                        | 24652-EINSTAR3           |
| PMN:                       | FCE863R                  |
| HVIN:                      | FCE863R                  |
| HMN:                       | 3D Scanner               |
| Operating Voltage:         | 3.3 V                    |

|                                                          |                                                                                                                                                                                                            |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Antenna Type:                                            | Integral Antennas                                                                                                                                                                                          |
| Antenna Gain:                                            | Antenna 1#: -3.0dBi (Provided by the Client)<br>Antenna 2#: -3.0dBi (Provided by the Client)                                                                                                               |
| <b>Technical Specification of Wi-Fi 802.11 b/g/n/ax</b>  |                                                                                                                                                                                                            |
| Operating Frequency:                                     | 2412 - 2462 MHz for 802.11b/g/n(HT20)<br>2422 - 2452 MHz for 802.11n(HT40)                                                                                                                                 |
| Type of Modulation:                                      | DSSS(DBPSK/DQPSK/CCK)<br>OFDM, OFDMA(BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM)                                                                                                                                 |
| Data Rate:                                               | 1/2/5.5/11 Mbps for 802.11b<br>6/9/12/18/24/36/48/54 Mbps for 802.11g<br>MCS0~MCS 7 for 802.11n(HT20/40)<br>MCS0~MCS11 for 802.11ax(HE20/40)<br>(All data rates considered, only the Worst-cases reported) |
| Channel Number:                                          | 11 channels for 802.11b/g/n(HT20)/ax(HE20)<br>7 channels for 802.11n(HT40)/ax(HE40)                                                                                                                        |
| Channel Separation:                                      | 5 MHz                                                                                                                                                                                                      |
| Antenna Type:                                            | Integral Antennas                                                                                                                                                                                          |
| Number of Antenna:                                       | 2 (SISO and MIMO supported), no beamforming                                                                                                                                                                |
| Antenna Gain:                                            | Antenna 1#: -3.0dBi (Provided by the Client)<br>Antenna 2#: -3.0dBi (Provided by the Client)                                                                                                               |
| RU Mode for 802.11ax                                     | <input checked="" type="checkbox"/> Full RU, <input checked="" type="checkbox"/> Partial RU (Single RU)                                                                                                    |
| <b>Technical Specification of Wi-Fi 802.11 a/n/ac/ax</b> |                                                                                                                                                                                                            |
| Operating Frequency:                                     | 5180-5240MHz, 5745-5825MHz*<br>*(The DFS bands 5250-5350MHz and 5470-5725MHz were blocked when it integrated into the host 3D Scanner )                                                                    |
| Type of Modulation:                                      | OFDM, OFDMA                                                                                                                                                                                                |
| Protocol:                                                | 802.11 a/n20/n40/ac20/ac40/ac80/ ax20/ax40/ax80                                                                                                                                                            |
| Data Rate:                                               | 6/9/12/18/24/36/48/54 Mbps for 802.11a<br>MCS0~MCS 7 for 802.11n<br>MCS0~MCS9 for 802.11ac<br>MCS0~MCS11 for 802.11ax<br>(All data rates considered, only the Worst-cases reported)                        |
| Antenna Type:                                            | Integral Antennas                                                                                                                                                                                          |
| Number of Antenna:                                       | 2 (SISO and MIMO supported), no beamforming                                                                                                                                                                |
| Antenna Gain:                                            | Antenna 1#: -3.0dBi (Provided by the Client)<br>Antenna 2#: -3.0dBi (Provided by the Client)                                                                                                               |
| RU Mode for 802.11ax                                     | <input checked="" type="checkbox"/> Full RU, <input checked="" type="checkbox"/> Partial RU (Single RU)                                                                                                    |

**Table 3: Technical Specification of Host**

| General Information of Host  | Description                                 |
|------------------------------|---------------------------------------------|
| Kind of Equipment:           | 3D Scanner                                  |
| Type Designation:            | EinScan Libre                               |
| Operating Voltage:           | DC 20V from the adapter or DC 14.4V Battery |
| Testing Voltage:             | DC 20V from the adapter or DC 14.4V Battery |
| Operating Temperature Range: | -10 °C ~ +40 °C                             |

### 3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Wi-Fi 802.11 a/n/ac/ax wireless transmitting mode
  - 1) Low Channel
  - 2) Middle Channel
  - 3) High Channel
- B. On, Wi-Fi 802.11 a/n/ac/ax connecting mode

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

### 3.5 Submitted Documents

- |                    |                         |
|--------------------|-------------------------|
| - Application Form | - User Manual           |
| - Block Diagram    | - Operation Description |

## 4 Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed in this report.

**Table 4: Test environments**

| Environment Parameter | Selected Values During Tests |         |                   |
|-----------------------|------------------------------|---------|-------------------|
|                       | Temperature                  | Voltage | Relative Humidity |
| NTNV                  | 24.6°C                       | Normal  | Ambient           |

**Table 5: Test channel and frequency**

| U-NII-1         |                 |                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 20MHz Bandwidth |                 | 40MHz Bandwidth |                 | 80MHz Bandwidth |                 |
| Channel         | Frequency (MHz) | Channel         | Frequency (MHz) | Channel         | Frequency (MHz) |
| 36              | 5180            | 38              | 5190            | 42              | 5210            |
| 40              | 5200            | 46              | 5230            |                 |                 |
| 44              | 5220            |                 |                 |                 |                 |
| 48              | 5240            |                 |                 |                 |                 |

| U-NII-3         |                 |                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 20MHz Bandwidth |                 | 40MHz Bandwidth |                 | 80MHz Bandwidth |                 |
| Channel         | Frequency (MHz) | Channel         | Frequency (MHz) | Channel         | Frequency (MHz) |
| 149             | 5745            | 151             | 5755            | 155             | 5775            |
| 153             | 5765            | 159             | 5795            |                 |                 |
| 157             | 5785            |                 |                 |                 |                 |
| 161             | 5805            |                 |                 |                 |                 |
| 165             | 5825            |                 |                 |                 |                 |

Prüfbericht - Nr.: CN24I9CC 002  
Test Report No.:Seite 12 von 17  
Page 12 of 17

## 4.3 Special Accessories and Auxiliary Equipment

Table 6: Auxiliary Equipment Used during Test

| Description | Manufacturer                       | Model            | S/N     | Remarks |
|-------------|------------------------------------|------------------|---------|---------|
| Notebook PC | Dell                               | Latitude 3490    | 2TJSXR2 | /       |
| Adapter     | Dongguan Aohai Technology Co., LTD | A879-200500C-CN1 | /       | /       |

## 4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

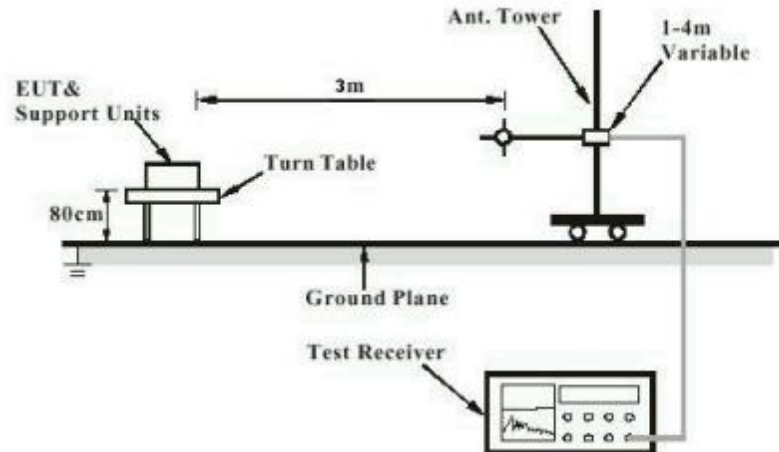


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

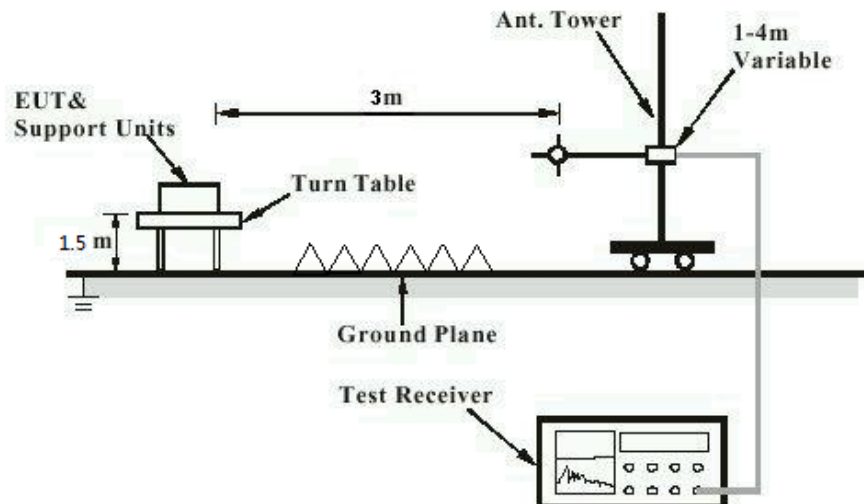
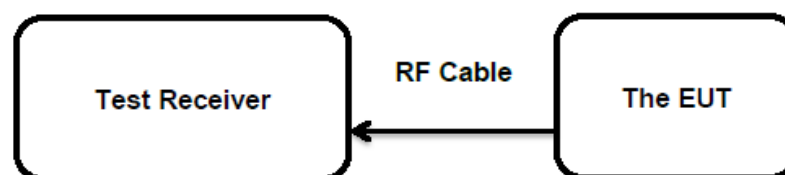


Diagram of Measurement Configuration for Conducted Transmitter Measurement



## 5 Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

RESULT:

**Pass**

**Test Specification**

Test standard : FCC Part 15.247(b)(4) and Part 15.203  
RSS-Gen Clause 6.8

The EUT has an integral antennas with a unique connector, which is designed with permanent attachment and no consideration of replacement. The maximum antenna gain is -3 dBi.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

## 5.1.2 Radiated Spurious Emission

**RESULT:****Pass****Test Specification**

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test standard  | : FCC Part 15.407(b) & FCC Part 15.205 & FCC Part 15.209<br>RSS-247 clause 6.2 & RSS-GEN clause 8.9 and 8.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Basic standard | : ANSI C63.10: 2013<br>KDB 789033 D02 v01r03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Limits         | : <ul style="list-style-type: none"><li>• For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.</li><li>• For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.</li><li>• For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.<br/>Emissions outside the band 5470-5600 MHz and 5650-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p.</li><li>• For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.<br/>Restricted Bands meet the requirement of 15.209 limit and RSS-GEN</li></ul> |

**Test Setup**

|                      |                          |
|----------------------|--------------------------|
| Date of testing      | : 2024-09-03 ~2024-09-22 |
| Input voltage        | : DC 14.4V Battery       |
| Operation mode       | : A                      |
| Test channel         | : Low / Middle / High    |
| Ambient temperature  | : Refer to test result   |
| Relative humidity    | : Refer to test result   |
| Atmospheric pressure | : 101 kPa                |

**Remark:**

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendixes B.

Prüfbericht - Nr.: **CN24I9CC 002**  
Test Report No.:Seite 16 von 17  
Page 16 of 17

### 5.1.3 AC Conducted Emission

**RESULT:****Pass****Test Specification**

|                   |                                         |
|-------------------|-----------------------------------------|
| Test standard     | : FCC Part 15.207(a)                    |
| Basic standard    | : ANSI C63.10: 2013                     |
| Frequency range   | : 0.15 – 30MHz                          |
| Limits            | : FCC Part 15.207(a)<br>RSS-Gen Table 4 |
| Kind of test site | : Shielded Room                         |

**Test Setup**

|                      |                          |
|----------------------|--------------------------|
| Date of testing      | : 2024-09-03 ~2024-09-22 |
| Input voltage        | : 120V/60Hz              |
| Operation mode       | : B                      |
| Test channel         | : Low / Middle / High    |
| Ambient temperature  | : Refer to test result   |
| Relative humidity    | : Refer to test result   |
| Atmospheric pressure | : 101 kPa                |

## 6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

## 7 List of Tables

|                                                      |    |
|------------------------------------------------------|----|
| Table 1: List of Test and Measurement Equipment..... | 6  |
| Table 2: Technical Specification of EUT.....         | 8  |
| Table 3: Technical Specification of Host .....       | 10 |
| Table 4: Test environments .....                     | 11 |
| Table 5: Test channel and frequency .....            | 11 |
| Table 6: Auxiliary Equipment Used during Test .....  | 12 |