

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                  |                                             |                           |                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------|--------------------------------|
| <b>Prüfbericht-Nr.:</b><br><i>Test report no.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>CN237L5F 004</b>                                                                                              | <b>Auftrags-Nr.:</b><br><i>Order no.:</i>   | <b>168423348</b>          | Seite 1 von 19<br>Page 1 of 19 |
| <b>Kunden-Referenz-Nr.:</b><br><i>Client reference no.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                   | N/A                                                                                                              | <b>Auftragsdatum:</b><br><i>Order date:</i> | 2023-04-18                |                                |
| <b>Auftraggeber:</b><br><i>Client:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Uniorange Internet Design Co., Ltd.</b><br>No.113, Shanhai Road, Laishan District, Yantai City, Shandong      |                                             |                           |                                |
| <b>Prüfgegenstand:</b><br><i>Test item:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                   | Cleaning Dock                                                                                                    |                                             |                           |                                |
| <b>Bezeichnung / Typ-Nr.:</b><br><i>Identification / Type no.:</i>                                                                                                                                                                                                                                                                                                                                                                                                            | ST-02A1AT, ST-02A1<br>(Trademark: Uniorange)                                                                     |                                             |                           |                                |
| <b>Auftrags-Inhalt:</b><br><i>Order content:</i>                                                                                                                                                                                                                                                                                                                                                                                                                              | Test Report                                                                                                      |                                             |                           |                                |
| <b>Prüfgrundlage:</b><br><i>Test specification:</i>                                                                                                                                                                                                                                                                                                                                                                                                                           | FCC 47 CFR Part 15.203<br>FCC 47 CFR Part 15.231<br>RSS-210 Issue 10 December 2019<br>RSS-Gen Issue 5 March 2019 |                                             |                           |                                |
| <b>Wareneingangsdatum:</b><br><i>Date of sample receipt:</i>                                                                                                                                                                                                                                                                                                                                                                                                                  | 2023-05-17                                                                                                       | Please refer to Photo Document              |                           |                                |
| <b>Prüfmuster-Nr.:</b><br><i>Test sample no.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                             | A003473764-001                                                                                                   |                                             |                           |                                |
| <b>Prüfzeitraum:</b><br><i>Testing period:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                | 2023-06-28 - 2023-07-18                                                                                          |                                             |                           |                                |
| <b>Ort der Prüfung:</b><br><i>Place of testing:</i>                                                                                                                                                                                                                                                                                                                                                                                                                           | TÜV Rheinland<br>(Shenzhen) Co., Ltd.                                                                            |                                             |                           |                                |
| <b>Prüflaboratorium:</b><br><i>Testing laboratory:</i>                                                                                                                                                                                                                                                                                                                                                                                                                        | TÜV Rheinland<br>(Shenzhen) Co., Ltd.                                                                            |                                             |                           |                                |
| <b>Prüfergebnis*:</b><br><i>Test result*:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pass                                                                                                             |                                             |                           |                                |
| <b>geprüft von:</b><br><i>tested by:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>genehmigt von:</b><br><i>authorized by:</i>                                                                   |                                             |                           |                                |
| <b>Datum:</b><br><i>Date:</i> 2023-08-11                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Ausstellungsdatum:</b><br><i>Issue date:</i> 2023-08-11                                                       |                                             |                           |                                |
| <b>Stellung / Position:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Sachverständige(r)/Expert                                                                                        | <b>Stellung / Position:</b>                 | Sachverständige(r)/Expert |                                |
| <b>Sonstiges /</b><br><i>Other:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                           | FCC ID: 2BBP9-QI2B<br>IC: 30776-QI2B, HVIN: ST-02A1                                                              |                                             |                           |                                |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br><i>Condition of the test item at delivery:</i>                                                                                                                                                                                                                                                                                                                                                                        | Prüfmuster vollständig und unbeschädigt<br><i>Test item complete and undamaged</i>                               |                                             |                           |                                |
| <p>* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet<br/>         * 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</p>                                                                                                                                                                     |                                                                                                                  |                                             |                           |                                |
| <p><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></p> |                                                                                                                  |                                             |                           |                                |

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**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.<br/>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.<br/>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><br/><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> |

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Test Report No.:

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## ***Test Summary***

**5.1.1 ANTENNA REQUIREMENT**

RESULT: Pass

**5.1.2 DEACTIVATION OF THE TRANSMISSION**

RESULT: Pass

**5.1.3 20dB EMISSION BANDWIDTH**

RESULT: Pass

**5.1.4 99%dB BANDWIDTH**

RESULT: Pass

**5.1.5 FIELD STRENGTH OF FUNDAMENTAL AND UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN**

RESULT: Pass

**5.1.6 CONDUCTED EMISSION ON AC MAINS**

RESULT: Pass

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# 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: Test Results.

Appendix B: Photographs of the Test Set-up.

## 2 Test Sites

### 2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District, Shenzhen 518110, Guangdong, China

FCC Accreditation Designation No.: 694916

ISED wireless device testing laboratory: 25069

### 2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

| Radio Spectrum Testing (TS8997)           |              |                   |              |            |
|-------------------------------------------|--------------|-------------------|--------------|------------|
| Equipment                                 | Manufacturer | Model             | Serial No.   | Cal. until |
| Signal Analyzer                           | R&S          | FSV 40            | 101441       | 2023-08-01 |
| OSP                                       | R&S          | OSP 150           | 101017       | 2023-11-21 |
| Control PC                                | DELL         | OptiPlex 7050     | FTJZ9P2      | N/A        |
| Test Software                             | R&S          | WMS32 (V11.00.00) | N/A          | N/A        |
| Power Meter                               | R&S          | NRP2              | 107105       | 2023-11-21 |
| Wideband Power Sensor                     | R&S          | NRP-Z81           | 105677       | 2023-08-01 |
| Shielding Room 8#                         | Albatross    | SR8               | APC17151-SR8 | 2024-06-22 |
| Unwanted Emission Testing (TS9975)        |              |                   |              |            |
| Equipment                                 | Manufacturer | Model             | Serial No.   | Cal. until |
| EMI Test Receiver                         | R&S          | ESR 7             | 102021       | 2023-08-02 |
| Signal Analyzer                           | R&S          | FSV 40            | 101439       | 2023-08-01 |
| System Controller Interface               | R&S          | SCI-100           | S10010038    | N/A        |
| Filterbank                                | R&S          | Wlan              | 100759       | 2023-08-01 |
| OSP                                       | R&S          | OSP 120           | 102040       | N/A        |
| Pre-amplifier                             | R&S          | SCU08F1           | 08320031     | 2023-08-02 |
| Amplifier                                 | R&S          | SCU-18F           | 180070       | 2023-08-02 |
| Amplifier                                 | R&S          | SCU40A            | 100475       | 2023-08-02 |
| Trilog Broadband Antenna (30 MHz - 7 GHz) | Schwarzbeck  | VULB 9162         | 193          | 2024-08-06 |
| Double-Ridged Antenna (1 -18 GHz)         | ETS-LINDGREN | 3117              | 00218717     | 2024-08-06 |
| Wideband Ridged Horn Antenna (18-40 GHz)  | Steatite     | QMS-00880         | 19067        | 2024-08-27 |
| Active Loop Antenna                       | Schwarzbeck  | FMZB 1513         | 302          | 2023-08-06 |
| Test software                             | R&S          | EMC32 (V10.60.10) | N/A          | N/A        |
| Control PC                                | Dell         | OptiPlex 7050     | 36NV9P2      | N/A        |
| 3m Semi-Anechoic Chamber                  | Albatross    | SAC-3m            | APC17151-SAC | 2024-06-22 |

| Conducted Emission       |              |                     |            |            |
|--------------------------|--------------|---------------------|------------|------------|
| Equipment                | Manufacturer | Model No.           | Serial No. | Cal. Until |
| EMI Test Receiver        | R&S          | ESR3                | 102428     | 2023-07-31 |
| Artificial Mains Network | R&S          | ENV216              | 102333     | 2023-08-01 |
| EMC32 test software      | R&S          | EMC32(Ver.10.50.00) | N/A        | N/A        |

## 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.

**Table 2: Measurement Uncertainty**

| Parameter                                              | Uncertainty (k=2)     |
|--------------------------------------------------------|-----------------------|
| RF output power, conducted                             | ± 0.99 dB             |
| Occupied Channel Bandwidth                             | ± 2.08 %              |
| All emissions, radiated                                | ±4.17 dB              |
| Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz) | ± 3.70 dB / ± 3.30 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) file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District, Shenzhen 518110, Guangdong, 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 EUT is an Cleaning Dock supports 433MHz function.

Description of product model differences:

For cleaning dock, models ST-02A1 and ST-02A1AT circuit and structure are identical, except plastic parts.

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

#### 3.2 Ratings and System Details

Table 3: Technical Specification of EUT

| General Information of EUT        | Value                             |
|-----------------------------------|-----------------------------------|
| Kind of Equipment:                | Cleaning Dock                     |
| Type Designation:                 | ST-02A1AT, ST-02A1                |
| Trademark:                        | Uniorange                         |
| FCC ID:                           | 2BBP9-QI2B                        |
| IC:                               | 30776-QI2B                        |
| HVIN:                             | ST-02A1                           |
| PMN:                              | Cleaning Dock                     |
| Operating Voltage :               | AC 100-120V, 50/60Hz              |
| Testing Voltage:                  | AC 120V, 60Hz                     |
| Technical Specification of 433MHz |                                   |
| Operating Frequency Band:         | 433.92MHz                         |
| Operating Frequencies:            | 433.92MHz                         |
| Modulation Type:                  | FSK                               |
| Antenna Type:                     | Integral Antenna                  |
| Antenna Gain :                    | 0.05 dBi (Provided by the Client) |

#### 3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Transmitting with operating frequency 433.92MHz
- B. Off

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

### 3.5 Submitted Documents

- |                              |                         |
|------------------------------|-------------------------|
| - Application Form           | - User Manual           |
| - ID Label and Location Info | - 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 testing were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model ST-02A1AT in this report.

### 4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

| Description | Manufacturer | Model | S/N       |
|-------------|--------------|-------|-----------|
| Laptop      | Lenovo       | T480  | PF-16A6N8 |

### 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)

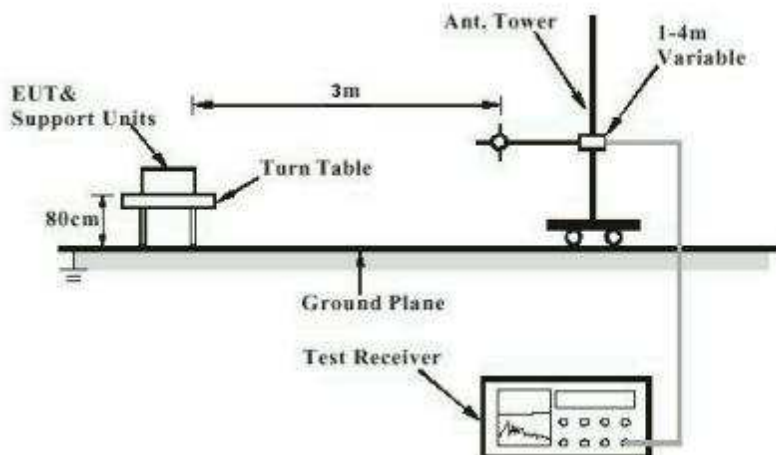
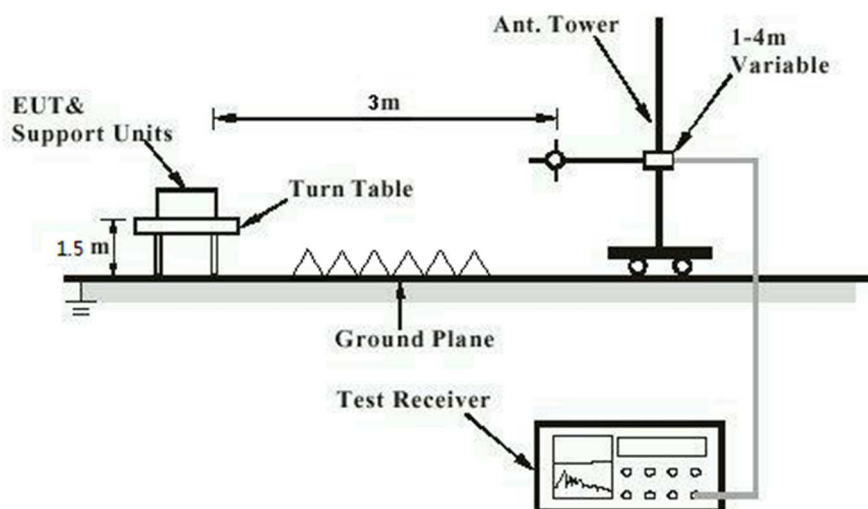
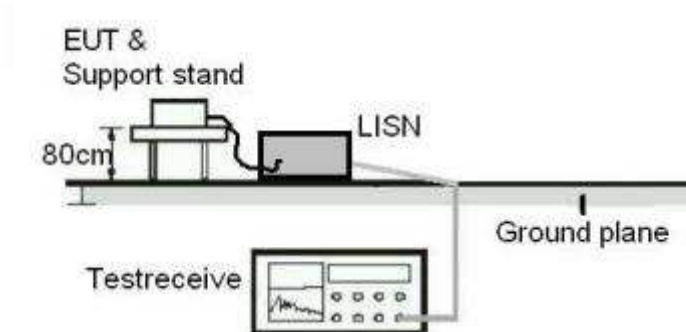


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



### Diagram of Measurement Configuration for Mains Conduction Measurement



### Diagram of Measurement Configuration for Conducted Transmitter Measurement



## 5 Test Results

### 5.1 Essential Requirements of Standard

#### 5.1.1 Antenna Requirement

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

|               |   |                                                                        |
|---------------|---|------------------------------------------------------------------------|
| Test standard | : | FCC Part 15.203<br>RSS-Gen Clause 6.8                                  |
| Limit         | : | the use of antennas with directional gains that do not<br>exceed 6 dBi |

The EUT has an Integral Antenna, the directional gain of antenna is 0.05 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

## 5.1.2 Deactivation of the Transmission

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

|                   |                                                                                                        |
|-------------------|--------------------------------------------------------------------------------------------------------|
| Test standard     | : FCC Part 15.231<br>RSS-Gen Issue 5                                                                   |
| Basic standard    | : ANSI C63.10: 2013                                                                                    |
| Test requirement  | : FCC Part 15.231 (a)(2)                                                                               |
| Limits            | : A transmitter activated automatically shall cease<br>transmission within 5 seconds after activation. |
| Kind of test site | : Shielded Room                                                                                        |

**Test Setup**

|                      |                 |
|----------------------|-----------------|
| Date of testing      | : 2023-07-18    |
| Input voltage        | : AC 120V, 60Hz |
| Operation mode       | : A             |
| Ambient temperature  | : 24.3 °C       |
| Relative humidity    | : 51 %          |
| Atmospheric pressure | : 101 kPa       |

For the measurement records, refer to the appendix A.

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### 5.1.3 20dB Emission Bandwidth

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

|                   |   |                                    |
|-------------------|---|------------------------------------|
| Test standard     | : | FCC Part 15.231<br>RSS-Gen Issue 5 |
| Basic standard    | : | ANSI C63.10: 2013                  |
| Test requirement  | : | FCC Part 15.231 (c)                |
| Limit             | : | FCC Part 15.231 (c)                |
| Kind of test site | : | Shielded Room                      |

**Test Setup**

|                      |   |               |
|----------------------|---|---------------|
| Date of testing      | : | 2023-07-12    |
| Input voltage        | : | AC 120V, 60Hz |
| Operation mode       | : | A             |
| Ambient temperature  | : | 24.3 °C       |
| Relative humidity    | : | 51 %          |
| Atmospheric pressure | : | 101 kPa       |

For the measurement records, refer to the appendix A.

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### 5.1.4 99%dB Bandwidth

**RESULT:**

**Pass**

#### Test Specification

|                   |                      |
|-------------------|----------------------|
| Test standard     | : RSS-Gen clause 6.7 |
| Basic standard    | : ANSI C63.10: 2013  |
| Kind of test site | : Shielded Room      |

#### Test Setup

|                      |                 |
|----------------------|-----------------|
| Date of testing      | : 2023-07-12    |
| Input voltage        | : AC 120V, 60Hz |
| Operation mode       | : A             |
| Ambient temperature  | : 24.3 °C       |
| Relative humidity    | : 51 %          |
| Atmospheric pressure | : 101 kPa       |

For the measurement records, refer to the appendix A.

### 5.1.5 Field strength of fundamental and Unwanted Emissions in the Spurious Domain

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

|                   |                                                                                   |
|-------------------|-----------------------------------------------------------------------------------|
| Test standard     | : FCC Part 15.231 & FCC Part 15.205 & FCC Part 15.209<br>RSS-210 Issue 10 Annex D |
| Basic standard    | : ANSI C63.10: 2013                                                               |
| Limits            | : FCC Part 15.231 (e)<br>RSS-Gen Table 5                                          |
| Kind of test site | : 3m Semi-anechoic Chamber                                                        |

**Test Setup**

|                 |                            |
|-----------------|----------------------------|
| Date of testing | : 2023-06-28 to 2023-07-06 |
| Input voltage   | : AC 120V, 60Hz            |

|                      |                        |
|----------------------|------------------------|
| Operation mode       | : A                    |
| 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 appendix A.

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### 5.1.6 Conducted Emission on AC Mains

**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) |
| Kind of test site | : Shielded Room      |

**Test Setup**

|                      |                        |
|----------------------|------------------------|
| Date of testing      | : 2023-05-30           |
| Input voltage        | : AC 120V, 60Hz        |
| Operation mode       | : A                    |
| Ambient temperature  | : Refer to test result |
| Relative humidity    | : Refer to test result |
| Atmospheric pressure | : 101 kPa              |

For the measurement records, refer to the appendix A.

## 6 Photographs of the Test Set-Up

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

## 7 List of Tables

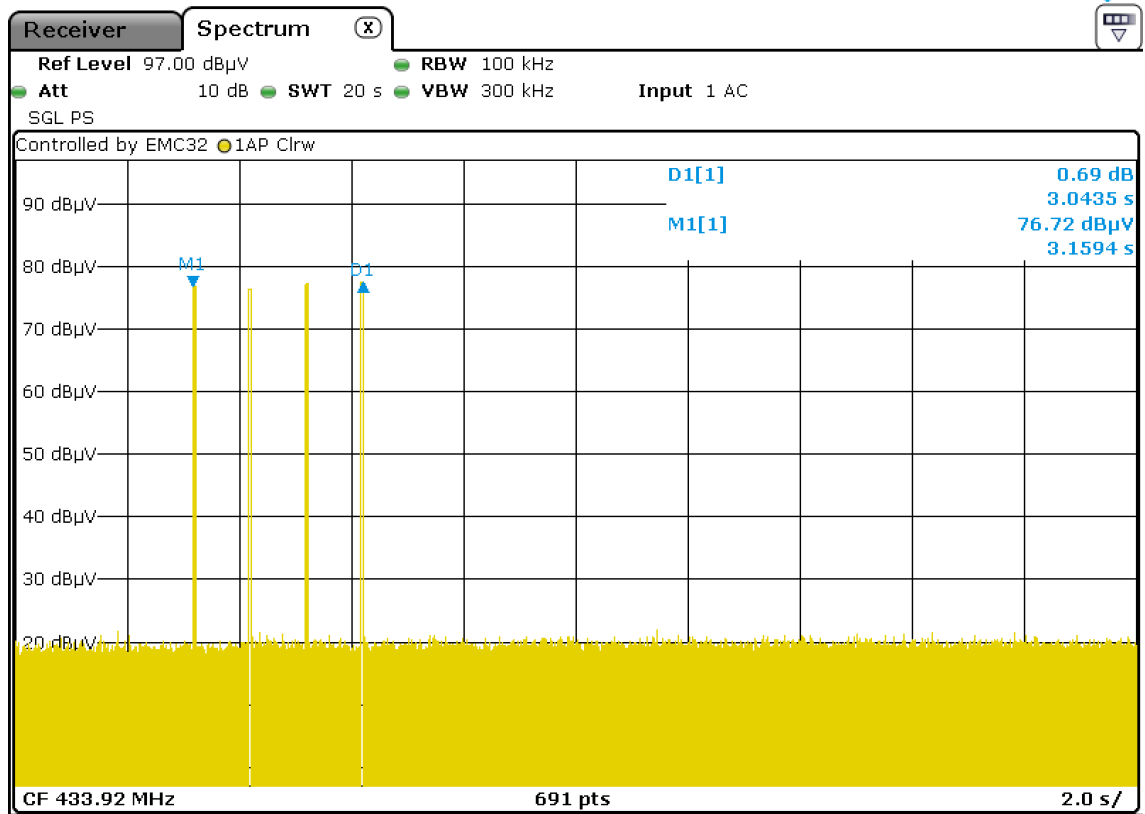
|                                                           |    |
|-----------------------------------------------------------|----|
| Table 1: List of Test and Measurement Equipment.....      | 6  |
| Table 2: Measurement Uncertainty.....                     | 7  |
| Table 3: Technical Specification of EUT .....             | 8  |
| Table 4: List of Accessories and Auxiliary Equipment..... | 10 |

## Appendix A: Test Results

|                                                                                                                       |          |
|-----------------------------------------------------------------------------------------------------------------------|----------|
| <b>APPENDIX A: TEST RESULTS .....</b>                                                                                 | <b>1</b> |
| <b>APPENDIX A.1: TEST RESULTS OF DEACTIVATION OF THE TRANSMISSION .....</b>                                           | <b>2</b> |
| <b>APPENDIX A.2: TEST RESULTS OF 20dB BANDWIDTH .....</b>                                                             | <b>3</b> |
| <b>APPENDIX A.3: TEST RESULTS OF 99% BANDWIDTH.....</b>                                                               | <b>4</b> |
| <b>APPENDIX A.4: TEST RESULTS OF FIELD STRENGTH OF FUNDAMENTAL AND UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN.....</b> | <b>5</b> |
| 30MHz - 1GHz .....                                                                                                    | 5        |
| Above 1GHz.....                                                                                                       | 7        |
| <b>APPENDIX A.5: TEST RESULTS OF CONDUCTED EMISSION ON AC MAINS.....</b>                                              | <b>9</b> |

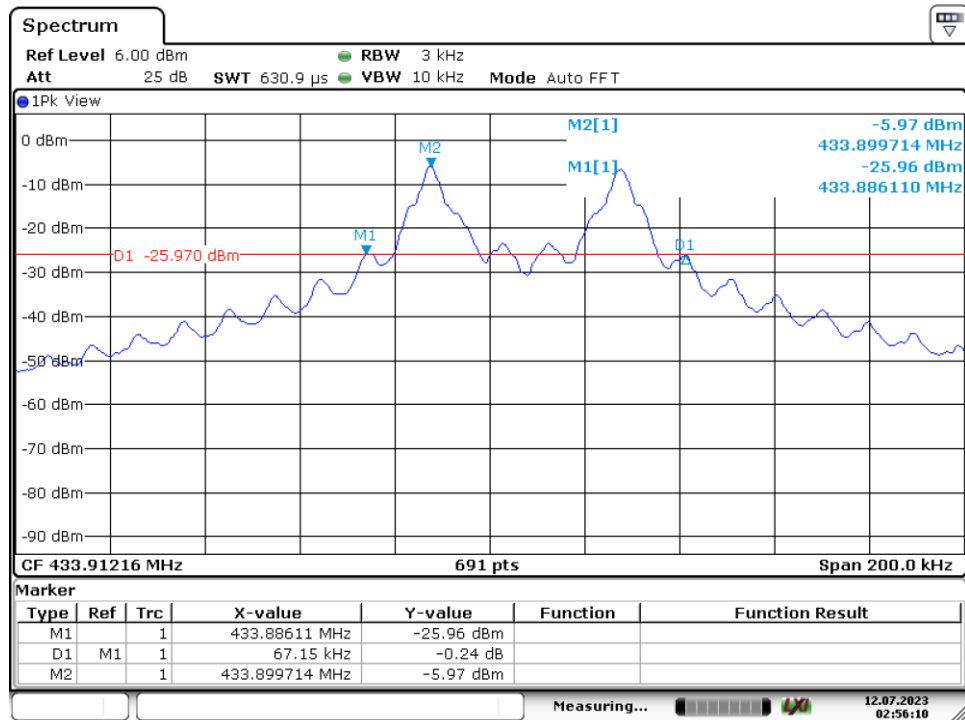
## Appendix A.1: Test Results of Deactivation of the Transmission

| Operation Mode | Frequency (MHz) | Duration Time (S) | Limit (S) | Result |
|----------------|-----------------|-------------------|-----------|--------|
| A              | 433.92          | 3.1594            | 5         | Pass   |



## Appendix A.2: Test Results of 20dB Bandwidth

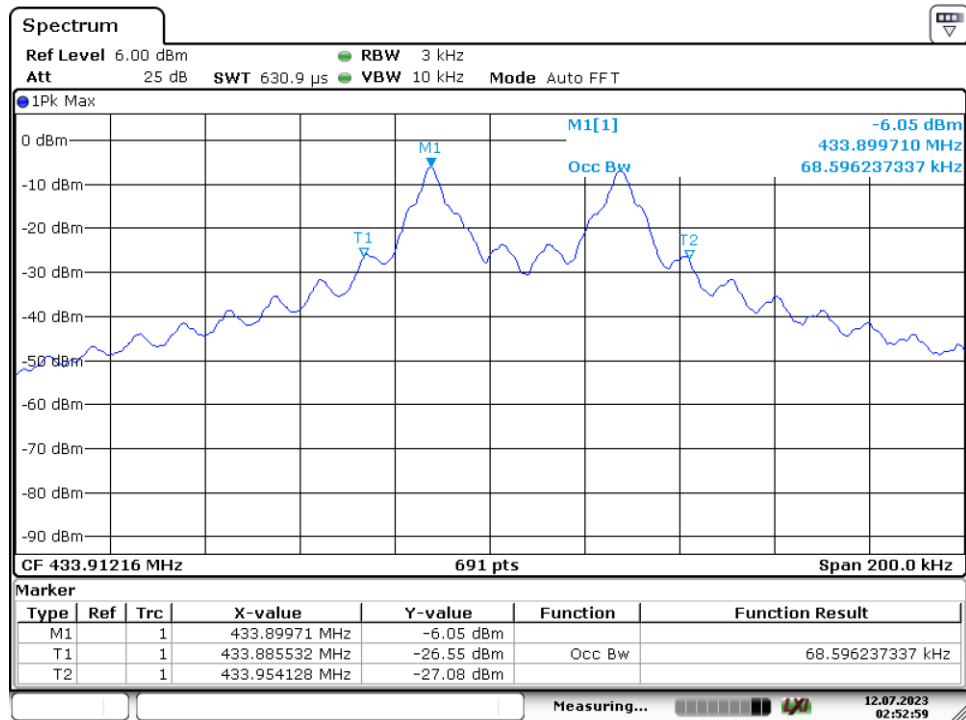
| Operation Frequency (MHz) | 20dB Emission Bandwidth (MHz) | Limit (MHz) | Result |
|---------------------------|-------------------------------|-------------|--------|
| 433.92                    | 0.067                         | 1.084       | Pass   |



Date: 12.JUL.2023 02:56:10

### Appendix A.3: Test Results of 99% Bandwidth

| Operation Frequency (MHz) | 99% Bandwidth (MHz) | Limit (MHz) | Result |
|---------------------------|---------------------|-------------|--------|
| 433.92                    | 0.0686              | -           | Pass   |



Date: 12.JUL.2023 02:52:59

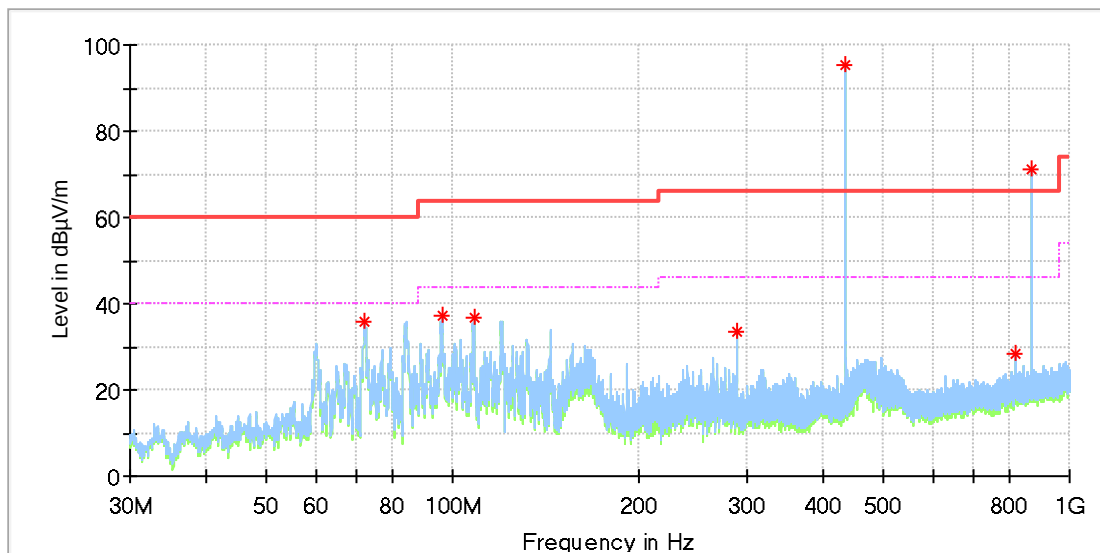
## Appendix A.4: Test Results of Field Strength of Fundamental and Unwanted Emissions in the Spurious Domain

Note: The highest waveform in the figure is 433MHz Fundamental.

30MHz - 1GHz

### EUT Information

|                     |                          |
|---------------------|--------------------------|
| EUT Name:           | Cleaning Dock            |
| Model:              | ST-02A1AT                |
| Test Mode:          | 433MHz                   |
| Order No/Sample No: | 168423348/A003473764-001 |
| Test Voltage::      | Battery                  |
| Remark:             | Temp 22 Humi:54%         |
| Test Standard:      | FCC 15.247               |
| Tested By:          | Kei Zhang                |
| Reviewed By:        | Terry Yin                |



### Critical\_Freqs

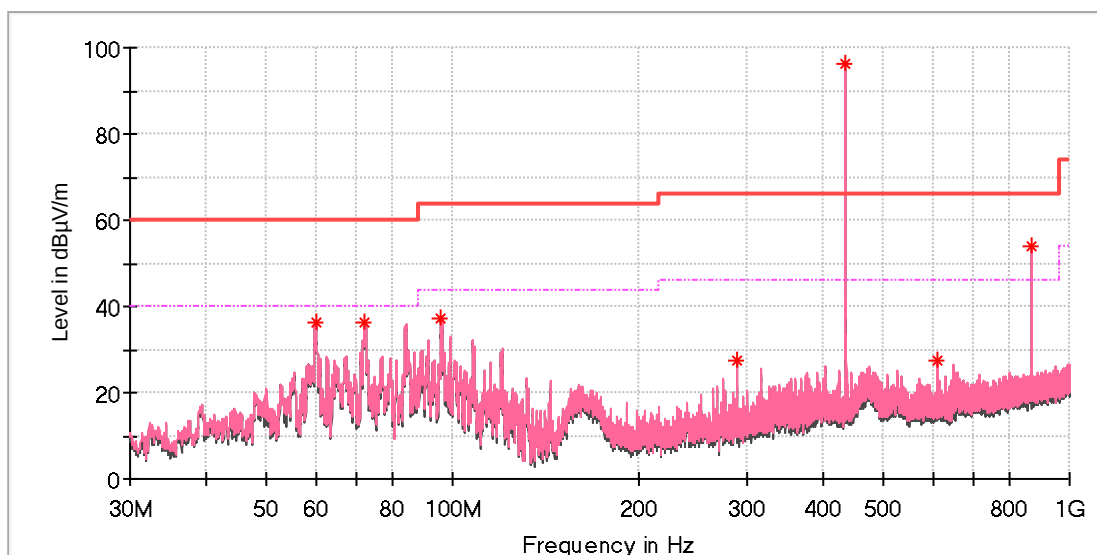
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 71.933846       | 35.73            | ---              | 40.00          | 4.27        | 100.0       | H   | 229.0         | -22.7        |
| 95.997308       | 37.02            | ---              | 43.50          | 6.48        | 100.0       | H   | 52.0          | -19.9        |
| 108.196923      | 36.87            | ---              | 43.50          | 6.63        | 100.0       | H   | 218.0         | -19.3        |
| 288.206539      | 33.45            | ---              | 46.00          | 12.55       | 100.0       | H   | 0.0           | -16.9        |
| 433.893077      | 95.31            | ---              | 100.82         | 5.51        | 100.0       | H   | 147.0         | -13.5        |
| 433.893077      | ---              | 70.31            | 80.82          | 10.51       | 100.0       | H   | 147.0         | -13.5        |
| 816.073077      | 28.35            | ---              | 46.00          | 17.65       | 100.0       | H   | 319.0         | -6.4         |
| 867.818846      | 71.26            | ---              | 80.82          | 9.56        | 100.0       | H   | 42.0          | -5.7         |
| 867.818846      | ---              | 46.26            | 60.82          | 14.56       | 100.0       | H   | 42.0          | -5.7         |

### Final\_Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|--------------------|----------------|-------------|-------------|-----|---------------|--------------|
| ---             | ---                | ---            | ---         | ---         |     | ---           | ---          |

## EUT Information

EUT Name: Cleaning Dock  
Model: ST-02A1AT  
Test Mode: 433MHz  
Order No/Sample No: 168423348/A003473764-001  
Test Voltage:: Battery  
Remark: Temp 22 Humi:54%  
Test Standard: FCC 15.247  
Tested By: Kei Zhang  
Reviewed By: Terry Yin



## Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 60.070000       | 36.51            | ---              | 40.00          | 3.49        | 100.0       | V   | 112.0         | -19.3        |
| 72.195000       | 36.11            | ---              | 40.00          | 3.89        | 100.0       | V   | 134.0         | -22.8        |
| 95.922692       | 37.32            | ---              | 43.50          | 6.18        | 100.0       | V   | 100.0         | -19.9        |
| 288.169231      | 27.58            | ---              | 46.00          | 18.42       | 100.0       | V   | 122.0         | -16.9        |
| 433.930385      | 96.45            | ---              | 100.82         | 4.37        | 100.0       | V   | 112.0         | -13.5        |
| 433.930385      | ---              | 71.45            | 80.82          | 9.37        | 100.0       | V   | 112.0         | -13.5        |
| 611.776154      | 27.44            | ---              | 46.00          | 18.56       | 100.0       | V   | 180.0         | -10.0        |
| 867.893462      | 53.90            | ---              | 80.82          | 26.92       | 100.0       | V   | 55.0          | -5.7         |
| 867.893462      | ---              | 28.90            | 60.82          | 31.92       | 100.0       | V   | 55.0          | -5.7         |

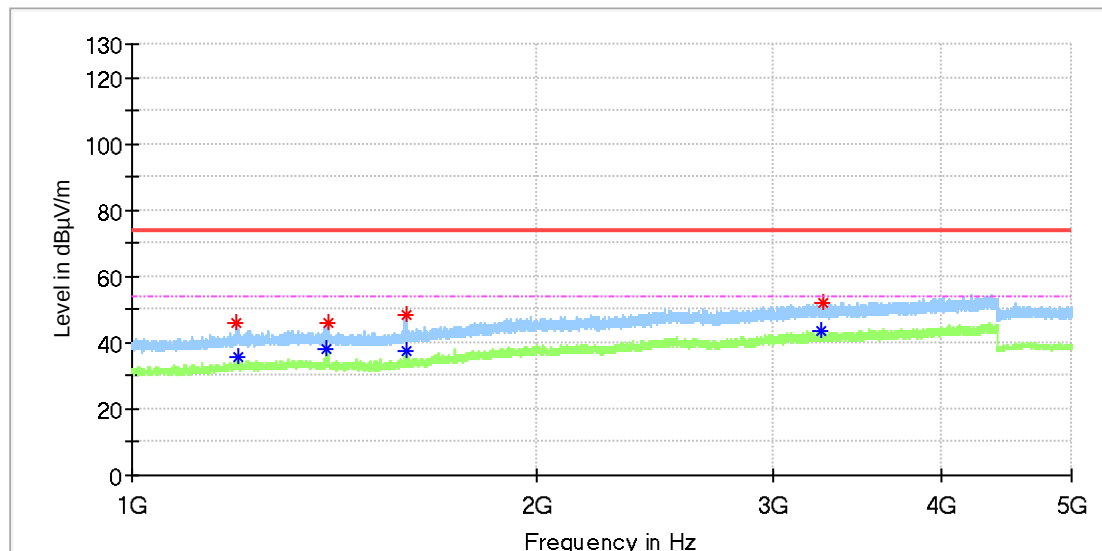
## Final\_Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|--------------------|----------------|-------------|-------------|-----|---------------|--------------|
| ---             | ---                | ---            | ---         | ---         | --- | ---           | ---          |

Above 1GHz

## EUT Information

|                     |                          |
|---------------------|--------------------------|
| EUT Name:           | Cleaning dock            |
| Model:              | ST-02A1AT                |
| Test Mode:          | 433MHz                   |
| Order No/Sample No: | 168423348/A003473764-001 |
| Test Voltage:       | AC 120V, 60Hz            |
| Remark:             | Temp 22 Humi:54%         |
| Test Standard:      | FCC 15.231               |
| Tested By:          | Kei Zhang                |
| Reviewed By:        | Terry Yin                |



## Critical Freqs

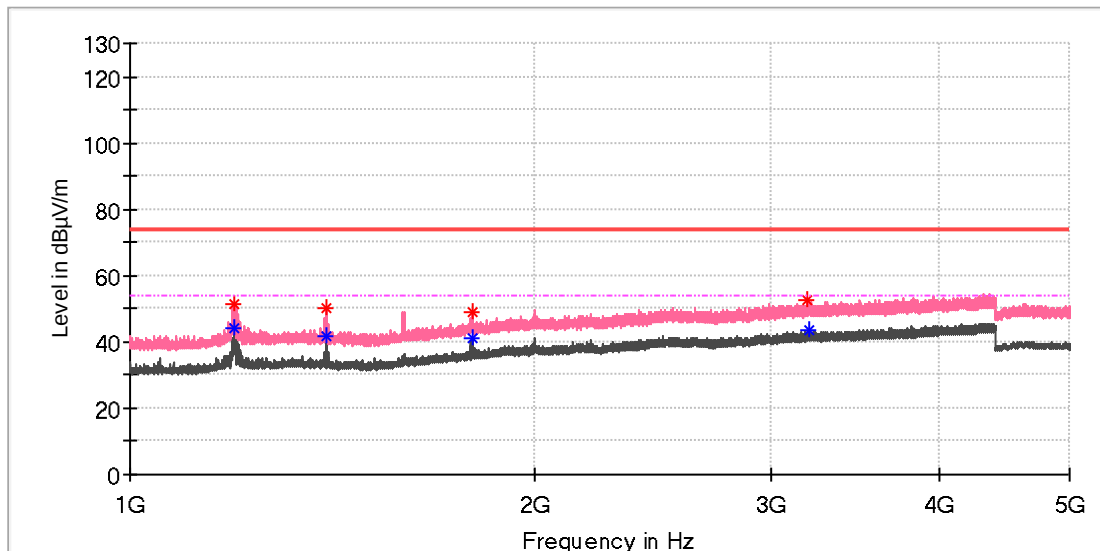
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 1194.650000     | 45.71            | ---              | 74.00          | 28.29       | 150.0       | H   | 0.0           | 1.1          |
| 1198.560000     | ---              | 35.39            | 54.00          | 18.61       | 150.0       | H   | 202.0         | 1.1          |
| 1393.210000     | ---              | 37.90            | 54.00          | 16.10       | 150.0       | H   | 61.0          | 1.7          |
| 1399.330000     | 45.94            | ---              | 74.00          | 28.06       | 150.0       | H   | 164.0         | 1.7          |
| 1599.080000     | ---              | 37.62            | 54.00          | 16.38       | 150.0       | H   | 142.0         | 2.1          |
| 1599.590000     | 48.17            | ---              | 74.00          | 25.83       | 150.0       | H   | 142.0         | 2.1          |
| 3260.320000     | ---              | 43.50            | 54.00          | 10.50       | 150.0       | H   | 239.0         | 8.5          |
| 3265.760000     | 52.19            | ---              | 74.00          | 21.81       | 150.0       | H   | 142.0         | 8.5          |

## Final Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| ---             | ---              | ---            | ---         | ---         |     | ---           | ---          |

## EUT Information

EUT Name: Cleaning dock  
Model: ST-02A1AT  
Test Mode: 433MHz  
Order No/Sample No: 168423348/A003473764-001  
Test Voltage: AC 120V, 60Hz  
Remark: Temp 22 Humi:54%  
Test Standard: FCC 15.231  
Tested By: Kei Zhang  
Reviewed By: Terry Yin



## Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 1195.840000     | 51.57            | ---              | 74.00          | 22.43       | 150.0       | V   | 156.0         | 1.1          |
| 1196.860000     | ---              | 44.06            | 54.00          | 9.94        | 150.0       | V   | 156.0         | 1.1          |
| 1399.330000     | 49.97            | ---              | 74.00          | 24.03       | 150.0       | V   | 74.0          | 1.7          |
| 1399.330000     | ---              | 41.81            | 54.00          | 12.19       | 150.0       | V   | 74.0          | 1.7          |
| 1796.110000     | ---              | 41.25            | 54.00          | 12.75       | 150.0       | V   | 147.0         | 4.6          |
| 1797.300000     | 48.90            | ---              | 74.00          | 25.10       | 150.0       | V   | 147.0         | 4.7          |
| 3193.680000     | 52.90            | ---              | 74.00          | 21.10       | 150.0       | V   | 237.0         | 8.6          |
| 3197.250000     | ---              | 43.58            | 54.00          | 10.42       | 150.0       | V   | 229.0         | 8.6          |

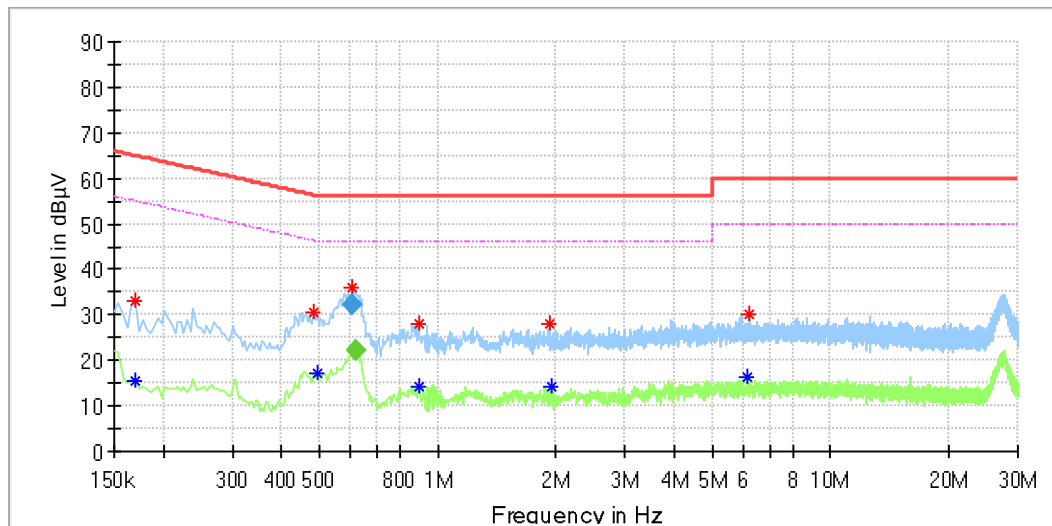
## Final Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| ---             | ---              | ---            | ---         | ---         |     | ---           | ---          |

## Appendix A.5: Test Results of Conducted Emission on AC Mains

### EUT Information

EUT Name: Cleaning dock  
Order Number: 168423348 210  
Model: ST-02A1AT  
Test Mode: 433MHz  
Test Voltage: AC 120V/60Hz  
Test Standard: FCC Part 15  
Test By./Review By: Guangshen cen/Gary Chen  
Tem./Hum./Pressure: 23.2°C/50.6%/101kPa  
Remark: SR2



### Critical\_Freqs

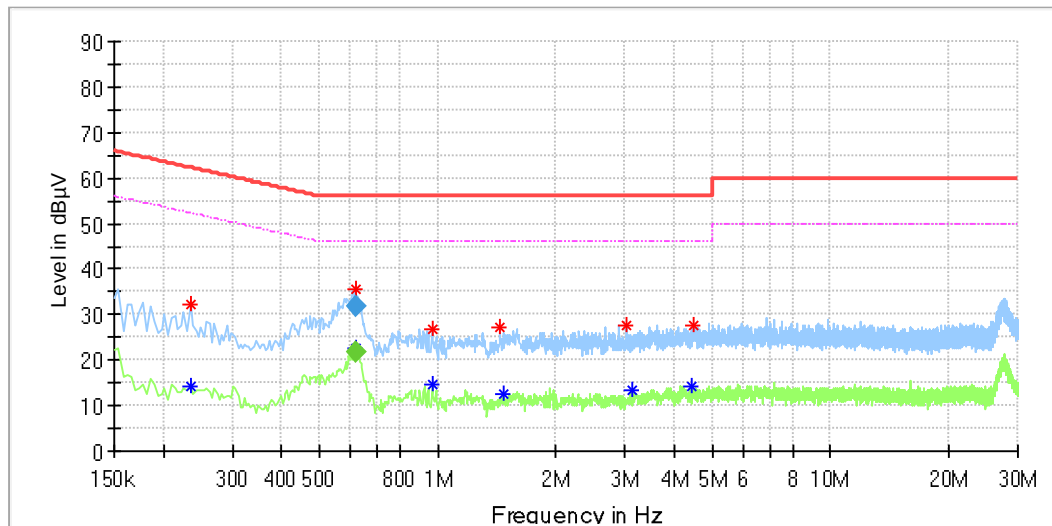
| Frequency (MHz) | MaxPeak (dBµV) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Line | Corr. (dB) |
|-----------------|----------------|----------------|--------------|-------------|------|------------|
| 0.170000        | ---            | 15.58          | 54.96        | 39.38       | L1   | 9.9        |
| 0.170000        | 33.27          | ---            | 64.96        | 31.69       | L1   | 9.9        |
| 0.482000        | 30.43          | ---            | 56.31        | 25.88       | L1   | 10.0       |
| 0.494000        | ---            | 17.28          | 46.10        | 28.82       | L1   | 10.0       |
| 0.605500        | 36.11          | ---            | 56.00        | 19.89       | L1   | 10.0       |
| 0.617500        | ---            | 22.40          | 46.00        | 23.60       | L1   | 10.0       |
| 0.894000        | ---            | 14.27          | 46.00        | 31.73       | L1   | 10.0       |
| 0.894000        | 28.25          | ---            | 56.00        | 27.75       | L1   | 10.0       |
| 1.926000        | 27.96          | ---            | 56.00        | 28.04       | L1   | 10.1       |
| 1.946000        | ---            | 14.38          | 46.00        | 31.62       | L1   | 10.1       |
| 6.174000        | ---            | 16.25          | 50.00        | 33.75       | L1   | 10.3       |
| 6.202000        | 30.15          | ---            | 60.00        | 29.85       | L1   | 10.3       |

### Final\_Result

| Frequency (MHz) | QuasiPeak (dBµV) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.605500        | 32.19            | ---            | 56.00        | 23.81       | 1000.0          | 9.000           | L1   | 10.0       |
| 0.617500        | ---              | 22.32          | 46.00        | 23.68       | 1000.0          | 9.000           | L1   | 10.0       |

## EUT Information

EUT Name: Cleaning dock  
Order Number: 168423348 210  
Model: ST-02A1AT  
Test Mode: 433MHz  
Test Voltage: AC 120V/60Hz  
Test Standard: FCC Part 15  
Test By./Review By: Guangshen cen/Gary Chen  
Tem./Hum./Pressure: 23.2°C/50.6%/101kPa  
Remark: SR2



## Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Line | Corr. (dB) |
|-----------------|----------------|----------------|--------------|-------------|------|------------|
| 0.234000        | ---            | 14.11          | 52.31        | 38.19       | N    | 9.8        |
| 0.234000        | 32.08          | ---            | 62.31        | 30.22       | N    | 9.8        |
| 0.617500        | 35.40          | ---            | 56.00        | 20.60       | N    | 9.8        |
| 0.618500        | ---            | 22.60          | 46.00        | 23.40       | N    | 9.8        |
| 0.970000        | ---            | 14.59          | 46.00        | 31.41       | N    | 9.8        |
| 0.970000        | 26.74          | ---            | 56.00        | 29.26       | N    | 9.8        |
| 1.438000        | 27.20          | ---            | 56.00        | 28.80       | N    | 9.8        |
| 1.470000        | ---            | 12.36          | 46.00        | 33.64       | N    | 9.8        |
| 3.018000        | 27.73          | ---            | 56.00        | 28.27       | N    | 9.9        |
| 3.118000        | ---            | 13.27          | 46.00        | 32.73       | N    | 9.9        |
| 4.446000        | ---            | 14.19          | 46.00        | 31.81       | N    | 9.9        |
| 4.462000        | 27.55          | ---            | 56.00        | 28.45       | N    | 9.9        |

## Final Result

| Frequency (MHz) | QuasiPeak (dBµV) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.617500        | 31.78            | ---            | 56.00        | 24.22       | 1000.0          | 9.000           | N    | 9.8        |
| 0.618500        | ---              | 21.56          | 46.00        | 24.44       | 1000.0          | 9.000           | N    | 9.8        |