| | | | | |
|---|---|---|---|---|
| **Prüfbericht-Nr.:** *Test report no.:* | **CN22TWVE 004** | **Auftrags-Nr.:** *Order no.:* | **168349178** | **Seite 1 von 13** *Page 1 of 13* |
| **Kunden-Referenz-Nr.:** *Client reference no.:* | **N/A** | **Auftragsdatum:** *Order date:* | 2021-12-23 | |
| **Auftraggeber:** *Client:* | ZTE Corporation<br>ZTE Plaza, Hi-Tech Park, Nanshan District, Shenzhen, Guangdong, P.R.China | | | |
| **Prüfgegenstand:** *Test item:* | RichMedia Box | | | |
| **Bezeichnung / Typ-Nr.:** *Identification / Type no.:* | ZXV10 B866V2F, ZXV10 B866V2F1, ZXV10 B866V2Fi, ZXV10 B866V2FA, ZXV10 B866V2FB, ZXV10 B866V2K, ZXV10 B866V2K1, ZXV10 B860HF, ZXV10 B860V2F, ZXV10 B870V2F, ZXV10 B766V2<br>(Trademark: ZTE) | | | |
| **Auftrags-Inhalt:** *Order content:* | Test Report | | | |
| **Prüfgrundlage:** *Test specification:* | CFR47 FCC Part 15: Subpart B,Class B Section 15.107<br>CFR47 FCC Part 15: Subpart B,Class B Section 15.109 | | | |

| | | |
|---|---|---|
| **Wareneingangsdatum:** *Date of sample receipt:* | 2021-12-28 | Please refer to Photo Document |
| **Prüfmuster-Nr.:** *Test sample no:* | A003191348-001 | |
| **Prüfzeitraum:** *Testing period:* | 2022-01-16 - 2022-01-19 | |
| **Ort der Prüfung:** *Place of testing:* | TÜV Rheinland (Shenzhen) Co., Ltd. | |
| **Prüflaboratorium:** *Testing laboratory:* | TÜV Rheinland (Shenzhen) Co., Ltd. | |
| **Prüfergebnis*:** *Test result*:* | Pass | |

| | | | |
|---|---|---|---|
| **geprüft von:** *tested by:* | X Tim.zhang<br>Signed by: Tim Zhang | **genehmigt von:** *authorized by:* | X Lin Lin<br>Signed by: Lin Lin |
| **Datum:** *Date:* 2022-01-24 | | **Ausstellungsdatum:** *Issue date:* 2022-01-24 | |
| **Stellung** */ Position:* | Project Manager | **Stellung** */ Position:* | Reviewer |
| **Sonstiges** */ Other:* | FCC ID: Q78-ZXV10905Y4A | | |

**Zustand des Prüfgegenstandes bei Anlieferung:** Prüfmuster vollständig und unbeschädigt
*Condition of the test item at delivery:* *Test item complete and undamaged*

| | | | | | |
|---|---|---|---|---|---|
| * Legende: | 1 = sehr gut | 2 = gut | 3 = befriedigend | 4 = ausreichend | 5 = mangelhaft |
| | P(ass) = entspricht o.g. Prüfgrundlage(n) | | F(ail) = entspricht nicht o.g. Prüfgrundlage(n) | N/A = nicht anwendbar | N/T = nicht getestet |
| ** Legend:* | *1 = very good* | *2 = good* | *3 = satisfactory* | *4 = sufficient* | *5 = poor* |
| | *P(ass) = passed a.m. test specification(s)* | | *F(ail) = failed a.m. test specification(s)* | *N/A = not applicable* | *N/T = not tested* |

# *Test Summary*

**5.1.1 CONDUCTED EMISSION ON AC MAINS**
*RESULT: Pass*

**5.1.2 RADIATED EMISSIONS**
*RESULT: Pass*

# Table of Contents

# 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 the Test Set-up

Appendix B: Test Results of FCC 15B

# 2 Test Sites

## 2.1 Test Facilities

**TÜV Rheinland (Shenzhen) Co., Ltd.**
No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Accreditation Designation No.: CN1260
ISED wireless device testing laboratory: 25069

## 2.2 List of Test and Measurement Instruments

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

| **Conducted Emission** | | | | |
|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Until** |
| EMI Test Receiver | R&S | ESR3 | 102428 | 2022-08-10 |
| Artificial Mains Network | R&S | ENV216 | 102333 | 2022-08-10 |
| Artificial Mains Network | R&S | ENV432 | 101411 | 2022-08-10 |
| EMC32 test software | R&S | EMC32(Ver.10.50.00) | N/A | N/A |
| **Radiated Emission (10m chamber)** | | | | |
| **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Until** |
| 10m SAC | ETS-Lindgren | SAC10 | CT001632-Q1399 | 2024-03-01 |
| EMI Test Receiver 1 | R&S | ESR7 | 102022 | 2022-08-10 |
| EMI Test Receiver 2 | R&S | ESR7 | 102023 | 2022-08-10 |
| Bilog Antenna 1 | TESEQ | CBL6112D | 51321 | 2022-08-08 |
| Bilog Antenna 2 | TESEQ | CBL6112D | 51322 | 2022-07-11 |
| Preamplifier 1 (30-1000MHz) | SCHWARZBECK | BBV9745 | 115 | 2022-08-13 |
| Preamplifier 2 (30-1000MHz) | EMCI | EMC9135-P | 980629 | 2022-08-13 |
| Preamplifier 3 (1-18GHz) | FIT | SCU-18F | 180076 | 2022-08-13 |
| Horn Antenna | R&S | HF907 | 102707 | 2022-07-10 |
| 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 basics 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 |
|---|---|
| Radiated Emission (10m SAC), 30MHz to 1000MHz | ± 4.66 dB |
| Radiated Emission (10m SAC), above 1000MHz | ± 4.35 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) 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 No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. 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 a RichMedia Box, which supports Bluetooth(dual mode), 2.4GHz Wi-Fi 802.11 b/g/n and 5GHz Wi-Fi 802.11a/n/ac wireless technology.

According to the declaration of the applicant, the schematics, PCB layout and electronic components are identical, only the model no. is different for market strategy.
The EUT have four adapters, details as below table:

| Description | Model | Rating | Manufacturer |
|---|---|---|---|
| Adapter 1# | UWP-12W-1210S | Input: 100-240V, 50/60Hz, 0.6A<br>Output: 12.0V, 1.0A | I.T.E&AV POWER SUPPLY |
| Adapter 2# | KL-WA120100-B | Input: 100-240V, 50/60Hz, 0.6A<br>Output: 12.0V, 1.0A | XIAMEN KELI ELECTRONIC CO., LTD |
| Adapter 3# | MN012E-L120100 | Input: 100-240V, 50/60Hz, 0.6A<br>Output: 12.0V, 1.0A | XIAMEN CASTEC ELECTRONIC INDUSTRY CO., LTD |
| Adapter 4# | RD1201000-C55 | Input: 100-240V, 50/60Hz, 0.6A<br>Output: 12.0V, 1.0A | Shenzhen Ruide electronic industrial Co., Ltd. |

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: | RichMedia Box |
| Type Designation: | ZXV10 B866V2F, ZXV10 B866V2F1, ZXV10 B866V2Fi, ZXV10 B866V2FA, ZXV10 B866V2FB, ZXV10 B866V2K, ZXV10 B866V2K1, ZXV10 B860HF, ZXV10 B860V2F, ZXV10 B870V2F, ZXV10 B766V2 |
| Trademark: | ZTE |
| FCC ID: | Q78-ZXV10905Y4A |
| Operating Voltage: | AC 120~240V, 50/60Hz input via adapter |
| Testing Voltage: | AC 120V, 60Hz |

## 3.3 Independent Operation Modes

The basic operation modes are:

A. On, WIFI operation + HDMI(4K)+S/PDIF
B. On, WIFI operation + AV+S/PDIF
C. On, RJ45 operation + HDMI(4K)+S/PDIF
D. On, RJ45 operation + AV+S/PDIF
E. On, USB Playing + HDMI(4K)+S/PDIF
F. On, USB Playing + AV+S/PDIF
G. On, TF card Playing + HDMI(4K)+S/PDIF
H. On, TF card Playing + AV+S/PDIF
I. On, BT operation
J. Off

## 3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

## 3.5 Submitted Documents

- Application Form
- Operation Description
- Schematics
- PCB Layout
- User Manual
- Block Diagram
- Rating Label
- Parts List

# 4 Test Set-up and Operation Modes

## 4.1 Principle of Configuration Selection

**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 C63.4: 2014.

According to clause 3.1, all tests were performed on model ZXV10 B866V2F in this report.

## 4.3 Special Accessories and Auxiliary Equipment

**Table 3: Auxiliary Equipment Used during Test**

| Description | Manufacturer | Model | S/N |
|---|---|---|---|
| Laptop | Lenovo | T480 | PF-16A6N8 |
| LCD 4K Color Display | PHILIPS | 272P7V | AUCA1833000075472 |
| Soundbar | Fenda | NS-HTSB22 | / |
| RJ45 cable | / | / | / |
| AV cable | / | / | / |
| HDMI cable | / | / | / |
| Optical fiber cable | / | / | / |

## 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)**

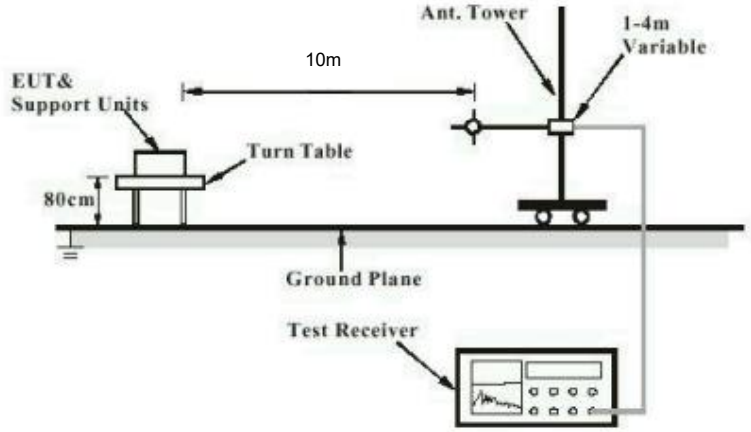



**Diagram of Measurement Configuration for Radiation Test (Above 1GHz)**

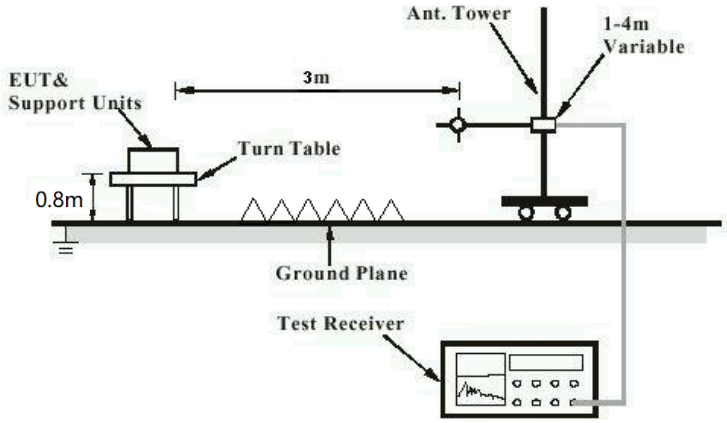
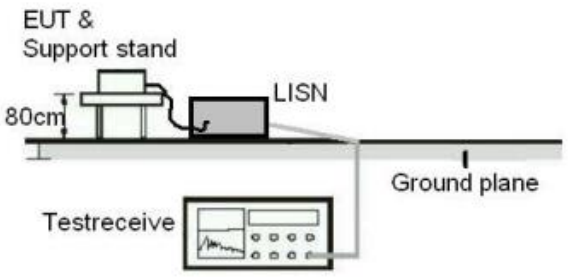



**Diagram of Measurement Configuration for Mains Conduction Measurement**



# 5 Test Results

## 5.1.1 Conducted Emission on AC Mains

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.107(a) |
| Basic standard | : | ANSI C63.4:2014 |
| Frequency range | : | 0.15 – 30MHz |
| Classification | : | Class B |
| Limits | : | FCC Part 15.107(a) |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 2022-01-16 |
| Input voltage | : | AC 120V, 60Hz |
| Operation mode | : | A, B, C, D, E, F, G, H, I |
| Earthing | : | Not connected |
| Ambient temperature | : | 23.1 ℃ |
| Relative humidity | : | 52 % |
| Atmospheric pressure | : | 101 kPa |

For the measurement records, refer to the appendix B.

## 5.1.2 Radiated Emissions

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.109(a) |
| Basic standard | : | ANSI C63.4:2014 |
| Frequency range | : | 30MHz to 5$^{th}$ harmonic of the highest frequency |
| Classification | : | Class B |
| Limits | : | FCC Part 15.109(a) |
| Kind of test site | : | 10m Semi-Anechoic Chamber |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 2022-01-17 to 2022-01-19 |
| Input voltage | : | AC 120V, 60Hz |
| Operation mode | : | A, B, C, D, E, F, G, H, I |
| Earthing | : | Not connected |
| Ambient temperature | : | 23 ℃ |
| Relative humidity | : | 50 % |
| Atmospheric pressure | : | 101 kPa |

For the measurement records, refer to the appendix B.

# 6 Photographs of the Test Set-Up

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

# 7 List of Tables