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|--|---|--|--|--|---|
| Prüfbericht-Nr.: <i>Test report No.:</i> | 50064681 004 | Auftrags-Nr.: <i>Order No.:</i> | 164074884 | Seite 1 von 20 <i>Page 1 of 20</i> | |
| Kunden-Referenz-Nr.: <i>Client reference No.:</i> | N/A | Auftragsdatum: <i>Order date.:</i> | 26.09.2016 | | |
| Auftraggeber: <i>Client:</i> | BBB Inc. 28, Yatap-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, South Korea | | | | |
| Prüfgegenstand: <i>Test item:</i> | Mobile Phone | | | | |
| Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i> | EZ-100 (elemark™, mobihealth) | | | | |
| Auftrags-Inhalt: <i>Order content:</i> | FCC Certification | | | | |
| Prüfgrundlage: <i>Test specification:</i> | CFR47 FCC Part 22: Subpart H CFR47 FCC Part 24: Subpart E | | | | |
| Wareneingangsdatum: <i>Date of receipt:</i> | 08.08.2016 | Please refer to photo documents | | | |
| Prüfmuster-Nr.: <i>Test sample No.:</i> | STR16098108I-1 | | | | |
| Prüfzeitraum: <i>Testing period:</i> | 08.08.2016 - 07.12.2016 | | | | |
| Ort der Prüfung: <i>Place of testing:</i> | Shenzhen SEM.Test Technology Co., Ltd. | | | | |
| Prüflaboratorium: <i>Testing laboratory:</i> | TÜV Rheinland (Shenzhen) Co., Ltd. | | | | |
| Prüfergebnis*: <i>Test result*:</i> | Pass | | | | |
| geprüft von / tested by: | | kontrolliert von / reviewed by: | | | |
|  29.12.2016 Lin Lin / Project Manager | |  29.12.2016 Sam Lin / Technical Certifier | | | |
| Datum <i>Date</i> | Name/Stellung <i>Name/Position</i> | Unterschrift <i>Signature</i> | Datum <i>Date</i> | Name/Stellung <i>Name/Position</i> | Unterschrift <i>Signature</i> |
| Sonstiges / Other: | | | | | |
| FCC ID: 2AKGP-EZ100 | | | | | |
| Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i> | | | Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i> | | |
| * Legende: 1 = sehr gut 2 = gut 3 = befriedigend P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) Legend: 1 = very good 2 = good 3 = satisfactory P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) | | | 4 = ausreichend 5 = mangelhaft N/A = nicht anwendbar N/T = nicht getestet 4 = sufficient 5 = poor N/A = not applicable N/T = not tested | | |
| 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. <i>This test report only relates to the a. m. 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> | | | | | |

Test Summary

5.1.1 RADIATED POWER

RESULT: Pass

5.1.2 OCCUPIED BANDWIDTH

RESULT: Pass

5.1.3 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

RESULT: Pass

5.1.4 BANDEDGE SPURIOUS EMISSIONS AT ANTENNA TERMINALS

RESULT: Pass

5.1.5 RADIATED SPURIOUS EMISSIONS

RESULT: Pass

5.1.6 FREQUENCY STABILITY

RESULT: Pass

5.1.7 PEAK-AVERAGE RATIO

RESULT: Pass

Table of Contents

| | | |
|-------|---|----|
| 1 | GENERAL REMARKS | 4 |
| 1.1 | COMPLEMENTARY MATERIALS | 4 |
| 2 | TEST SITES | 5 |
| 2.1 | TEST FACILITIES | 5 |
| 2.2 | LIST OF TEST AND MEASUREMENT INSTRUMENTS | 5 |
| 2.3 | TRACEABILITY | 5 |
| 2.4 | CALIBRATION | 5 |
| 2.5 | MEASUREMENT UNCERTAINTY | 6 |
| 2.6 | LOCATION OF ORIGINAL DATA..... | 6 |
| 2.7 | STATUS OF FACILITY USED FOR TESTING | 6 |
| 3 | GENERAL PRODUCT INFORMATION..... | 7 |
| 3.1 | PRODUCT FUNCTION AND INTENDED USE | 7 |
| 3.2 | RATINGS AND SYSTEM DETAILS | 7 |
| 3.3 | INDEPENDENT OPERATION MODES | 8 |
| 3.4 | NOISE GENERATING AND NOISE SUPPRESSING PARTS | 8 |
| 3.5 | SUBMITTED DOCUMENTS..... | 8 |
| 4 | TEST SET-UP AND OPERATION MODES | 9 |
| 4.1 | PRINCIPLE OF CONFIGURATION SELECTION..... | 9 |
| 4.2 | TEST OPERATION AND TEST SOFTWARE | 9 |
| 4.3 | SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT | 9 |
| 4.4 | TEST SETUP DIAGRAM | 9 |
| 5 | TEST RESULTS | 11 |
| 5.1 | TRANSMITTER REQUIREMENT & TEST SUITES | 11 |
| 5.1.1 | <i>Radiated Power</i> | 11 |
| 5.1.2 | <i>Occupied Bandwidth</i> | 12 |
| 5.1.3 | <i>Spurious Emissions at Antenna Terminals</i> | 13 |
| 5.1.4 | <i>Bandedge Spurious Emissions at Antenna Terminals</i> | 14 |
| 5.1.5 | <i>Radiated Spurious Emissions</i> | 15 |
| 5.1.6 | <i>Frequency Stability</i> | 16 |
| 5.1.7 | <i>Peak-Average Ratio</i> | 17 |
| 6 | PHOTOGRAPHS OF THE TEST SET-UP | 18 |
| 7 | LIST OF TABLES | 20 |
| 8 | LIST OF PHOTOGRAPHS..... | 20 |

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 of GSM and WCDMA

2 Test Sites

2.1 Test Facilities

Shenzhen SEM.Test Technology Co., Ltd.
1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, China

FCC Registration No.: 934118

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

Shenzhen SEM.Test Technology Co., Ltd.

| Description | Manufacturer | Model | Serial No. | Cal Date | Due. Date |
|-----------------------------|-----------------|-------------|-------------|------------|------------|
| Communication Tester | Rohde & Schwarz | CMW500 | 148650 | 2016-06-04 | 2017-06-03 |
| GSM Tester | Rohde & Schwarz | CMU200 | 104036 | 2016-06-04 | 2017-06-03 |
| Spectrum Analyzer | Agilent | E4407B | MY41440400 | 2016-06-04 | 2017-06-03 |
| Spectrum Analyzer | Agilent | N9020A | US47140102 | 2016-06-04 | 2017-06-03 |
| Signal Generator | Agilent | 83752A | 3610A01453 | 2016-06-04 | 2017-06-03 |
| Vector Signal Generator | Agilent | N5182A | MY47070202 | 2016-06-04 | 2017-06-03 |
| Power Divider | Weinschel | 1506A | PM204 | 2016-06-04 | 2017-06-03 |
| Power Divider | RF-Lambda | RFLT4W5M18G | 14110400027 | 2016-06-04 | 2017-06-03 |
| Spectrum Analyzer | Rohde & Schwarz | FSP30 | 836079/035 | 2016-06-04 | 2017-06-03 |
| EMI Test Receiver | Rohde & Schwarz | ESVB | 825471/005 | 2016-06-04 | 2017-06-03 |
| Amplifier | Agilent | 8447F | 3113A06717 | 2016-06-04 | 2017-06-03 |
| Amplifier | C&D | PAP-1G18 | 2002 | 2016-06-04 | 2017-06-03 |
| Loop Antenna | Schwarz beck | FMZB 1516 | 9773 | 2016-06-04 | 2017-06-03 |
| Broadband Antenna | Schwarz beck | VULB9163 | 9163-333 | 2016-06-04 | 2017-06-03 |
| Horn Antenna | ETS | 3117 | 00086197 | 2016-06-04 | 2017-06-03 |
| Horn Antenna | ETS | 3116B | 00088203 | 2016-06-04 | 2017-06-03 |
| Horn Antenna | Schwarbeck | BBHA9170 | BBHA9170582 | 2016-06-04 | 2017-06-03 |
| Temperature Chamber cycling | Zhongjian | YX-KHWS150A | ZJI130929 | 2016-11-18 | 2017-11-17 |

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

| Item | Conditions | Extended Uncertainty |
|--------------------------------|------------|----------------------|
| RF Output Power | Conducted | $\pm 0.42\text{dB}$ |
| Occupied Bandwidth | Conducted | $\pm 1.5\%$ |
| Frequency Stability | Conducted | 2.3% |
| Conducted Spurious Emission | Conducted | $\pm 2.17\text{dB}$ |
| Transmitter Spurious Emissions | Radiated | $\pm 5.1\text{dB}$ |

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A 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 Shenzhen SEM.Test Technology Co., Ltd. Test facility located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, 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 Mobile Phone which supports Bluetooth V4.0 (dual mode) and WiFi 802.11 b/g/n/ wireless technology. This report is only for GSM and WCDMA functions of PCE. Other functions with different technologies are reported in the related reports.

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 Description of EUT | |
|---------------------------------------|--|
| Product Name: | Mobile Phone |
| Brand Name: | elemark™/mobihealth |
| Model No.: | EZ-100 |
| Rated Voltage: | DC 3.8V |
| Battery Capacity: | 3000mAh |
| Software Version: | I3501_65u_l1_20160928175345 |
| Hardware Version: | I3501-MB-V2 |
| Type of Product | Portable Device |
| GSM | |
| Support Networks: | GSM, GPRS, EDGE |
| Support Bands: | GSM850, PCS1900 |
| Frequency Range: | GSM850: Tx: 824-849MHz, Rx: 869-894MHz DCS1900: Tx: 1850-1910MHz, Rx: 1930-1990MHz |
| Modulation Type: | GMSK, 8PSK |
| Channel Spacing: | 200KHz |
| State the minimum channel separation: | 200KHz |
| Antenna Type: | Integral Antenna |
| Antenna Gain: | GSM850: 1.55dBi, DCS1900: 2.51dBi |
| GPRS/EDGE Class: | Class 12 |
| Device Class: | B |
| WCDMA | |
| Support Networks: | WCDMA, HSDPA, HSUPA |
| Category: | HSDPA UE Category:4 HSUPA UE Category:5 |
| Support Bands: | WCDMA Band 2, WCDMA Band 5 |
| Frequency Range: | WCDMA Band 2: Tx: 1850-1910MHz, Rx: 1930-1990MHz WCDMA Band 5: Tx: 824-849MHz, Rx: 869-894MHz |
| Modulation Type: | BPSK, QPSK, 16QAM |
| Channel Spacing: | 200KHz |
| State the minimum channel separation: | 5MHz |
| Type of Antenna: | Integral Antenna |
| Antenna Gain: | WCDMA Band 2: 2.49dBi, WCDMA Band 5: 1.51dBi |

Table 4: RF Channel and Frequency of GSM and WCDMA

| Support Band | Support Standard | Channel Frequency | Channel Number |
|--------------|------------------|-------------------|----------------|
| GSM 850 | GSM/GPRS/EDGE | 824.2 MHz | 128 |

| | | | |
|--------------|-------------------|------------|------|
| PCS 1900 | GSM/GPRS/EDGE | 836.6 MHz | 190 |
| | | 848.8 MHz | 251 |
| | | 1850.2 MHz | 512 |
| | | 1880.0 MHz | 661 |
| | | 1909.8 MHz | 810 |
| WCDMA Band 5 | WCDMA/HSDPA/HSUPA | 826.5 MHz | 4132 |
| | | 836.6 MHz | 4183 |
| | | 846.6 MHz | 4233 |
| WCDMA Band 2 | WCDMA/HSDPA/HSUPA | 1852.5 MHz | 9262 |
| | | 1880.0 MHz | 9400 |
| | | 1907.6 MHz | 9538 |

Note: the transmitter has been tested on the communications mode of GSM, GPRS, EDGE, WCDMA, HSDPA, HSUPA compliance test and record the worst case.

3.3 Independent Operation Modes

| Test Mode | Description | Remark |
|-----------|--------------|----------------------------|
| TM1 | GSM 850 | Low, Middle, High Channels |
| TM2 | GPRS 850 | Low, Middle, High Channels |
| TM3 | EDGE 850 | Low, Middle, High Channels |
| TM4 | GSM 1900 | Low, Middle, High Channels |
| TM5 | GPRS 1900 | Low, Middle, High Channels |
| TM6 | EDGE 1900 | Low, Middle, High Channels |
| TM7 | WCDMA Band 5 | Low, Middle, High Channels |
| TM8 | HSDPA Band 5 | Low, Middle, High Channels |
| TM9 | HSUPA Band 5 | Low, Middle, High Channels |
| TM10 | WCDMA Band 2 | Low, Middle, High Channels |
| TM11 | HSDPA Band 2 | Low, Middle, High Channels |
| TM12 | HSUPA Band 2 | Low, Middle, High Channels |

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Block Diagram
- Schematics
- Technical Description
- FCC/IC Label and Location Info
- Photo Document
- User Manual

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.

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 KDB 971168 D01 and ANSI/TIA-603-D.

4.3 Special Accessories and Auxiliary Equipment

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4.4 Test Setup Diagram

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

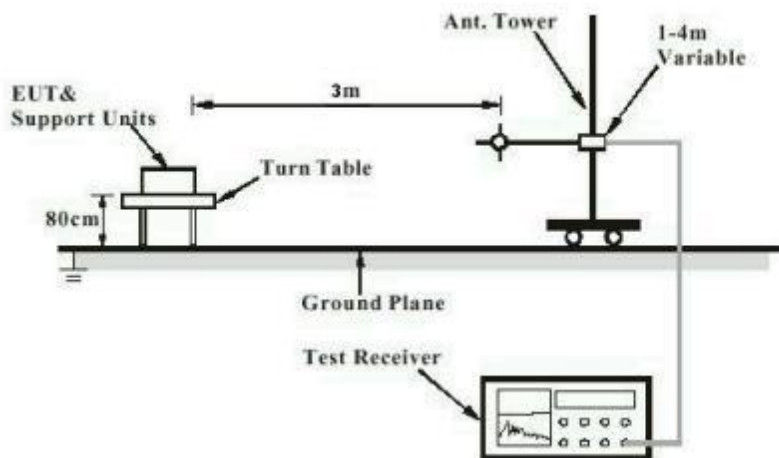


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

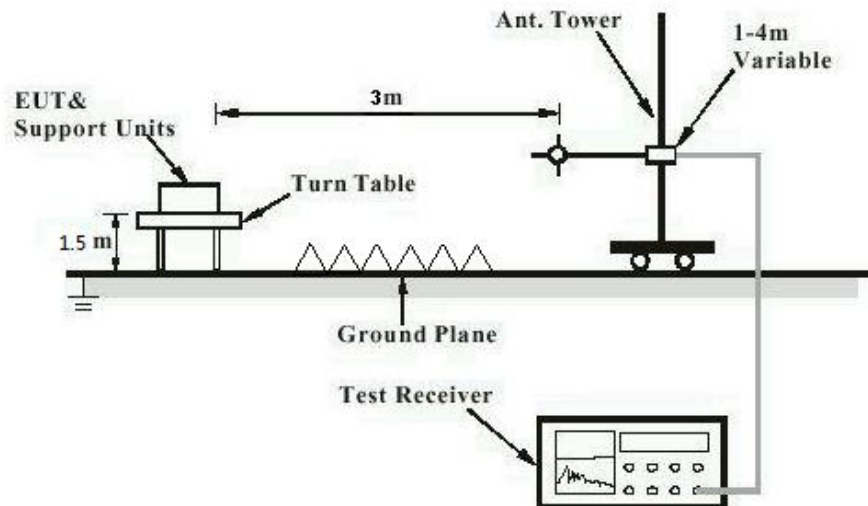
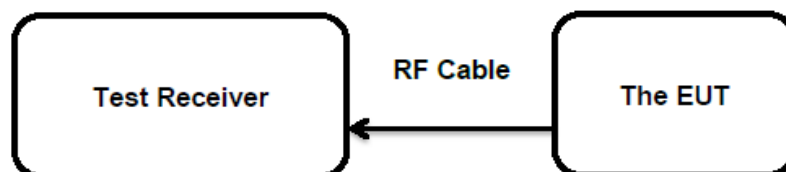


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Radiated Power

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

| | |
|-------------------|--|
| Test standard | : FCC Part 22.913 (a) (2) |
| | : FCC Part 24.232 (c) |
| Limits | : $\leq 7\text{W ERP}$ (GSM850MHz and WCDMA band5) |
| | : $\leq 2\text{W EIRP}$ (PCS1900MHz and WCDMA band2) |
| Kind of test site | : 3m Full-anechoic Chamber |

Test Setup

| | |
|----------------------|---------------------------------|
| Date of testing | : 26.10.2016 |
| Input voltage | : Fully charged Lithium battery |
| Operation mode | : TM1 to TM12 |
| Ambient temperature | : 25 °C |
| Relative humidity | : 56 % |
| Atmospheric pressure | : 101 kPa |

Refer to 50064681 004 Appendix A for detail test data.

5.1.2 Occupied Bandwidth**RESULT:****Pass****Test Specification**

| | |
|-------------------|--|
| Test standard | : FCC Part 2.1049 |
| Limits | : N/A (99% bandwidth and 26dB bandwidth) |
| Kind of test site | : Shielded Room |

Test Setup

| | |
|----------------------|---------------------------------|
| Date of testing | : 26.10.2016 |
| Input voltage | : Fully charged Lithium battery |
| Operation mode | : TM1 to TM12 |
| Ambient temperature | : 25 °C |
| Relative humidity | : 56 % |
| Atmospheric pressure | : 101 kPa |

Refer to 50064681 004 Appendix A for detail test data.

5.1.3 Spurious Emissions at Antenna Terminals**RESULT:****Pass****Test Specification**

| | |
|-------------------|-----------------------|
| | FCC Part 2.1051 |
| Test standard | : FCC Part 22.917 (a) |
| | FCC Part 24.238 (a) |
| Limits | : Less than -13dBm |
| Kind of test site | : Shielded Room |

Test Setup

| | |
|----------------------|---------------------------------|
| Date of testing | : 26.10.2016 |
| Input voltage | : Fully charged Lithium battery |
| Operation mode | : TM1 to TM12 |
| Ambient temperature | : 25 °C |
| Relative humidity | : 56 % |
| Atmospheric pressure | : 101 kPa |

Refer to 50064681 004 Appendix A for detail test data.

5.1.4 Bandedge Spurious Emissions at Antenna Terminals**RESULT:****Pass****Test Specification**

| | |
|-------------------|-----------------------|
| | FCC Part 2.1051 |
| Test standard | : FCC Part 22.917 (a) |
| | FCC Part 24.238 (a) |
| Limits | : Less than -13dBm |
| Kind of test site | : Shielded Room |

Test Setup

| | |
|----------------------|---------------------------------|
| Date of testing | : 26.10.2016 |
| Input voltage | : Fully charged Lithium battery |
| Operation mode | : TM1 to TM12 |
| Ambient temperature | : 25 °C |
| Relative humidity | : 56 % |
| Atmospheric pressure | : 101 kPa |

Refer to 50064681 004 Appendix A for detail test data.

5.1.5 Radiated Spurious Emissions**RESULT:****Pass****Test Specification**

| | |
|-------------------|---|
| | FCC Part 2.1053 |
| Test standard | : FCC Part 22.917 (a) |
| | FCC Part 24.238 (a) |
| Limits | : Less than -13dBm |
| Kind of test site | : 3m Semi-anechoic Chamber & 3m Full-anechoic Chamber |

Test Setup

| | |
|----------------------|---------------------------------|
| Date of testing | : 26.10.2016 |
| Input voltage | : Fully charged Lithium battery |
| Operation mode | : TM1 to TM12 |
| Ambient temperature | : 25 °C |
| Relative humidity | : 56 % |
| Atmospheric pressure | : 101 kPa |

Refer to 50064681 004 Appendix A for detail test data.

5.1.6 Frequency Stability**RESULT:****Pass****Test Specification**

| | | |
|-------------------|---|--|
| Test standard | : | FCC Part2.1055 FCC Part 22.355 FCC Part 24.235 |
| Limits | : | ±2.5ppm for FCC Part 22.355 Within assigned bands for FCC Part 24.235 |
| Kind of test site | : | Shielded Room |

Test Setup

| | | |
|----------------------|---|-------------------------------|
| Date of testing | : | 26.10.2016 |
| Input voltage | : | Fully charged Lithium battery |
| Operation mode | : | TM1 to TM12 |
| Ambient temperature | : | 25 °C |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

Refer to 50064681 004 Appendix A for detail test data.

5.1.7 Peak-Average Ratio**RESULT:****Pass****Test Specification**

| | |
|-------------------|-----------------------|
| Test standard | : FCC Part 24.232 (d) |
| Limits | : <13dB |
| Kind of test site | : Shielded Room |

Test Setup

| | |
|----------------------|---------------------------------|
| Date of testing | : 26.10.2016 |
| Input voltage | : Fully charged Lithium battery |
| Operation mode | : TM1 to TM12 |
| Ambient temperature | : 25 °C |
| Relative humidity | : 56 % |
| Atmospheric pressure | : 101 kPa |

Refer to 50064681 004 Appendix A for detail test data.