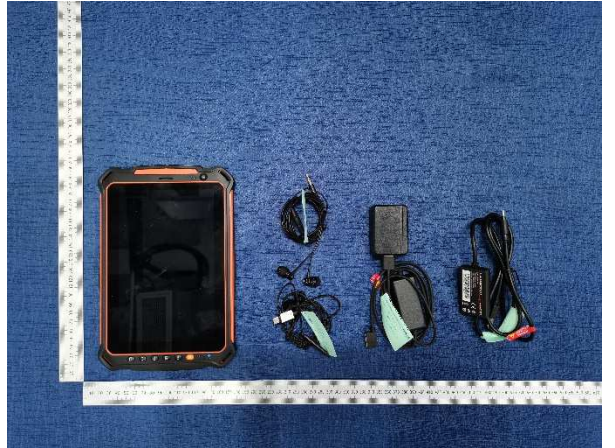


Prüfbericht-Nr.: <i>Test report no.:</i>	60374756 001	Auftrags-Nr.: <i>Order no.:</i>	168264720	Seite 1 von 13 Page 1 of 13
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2020-05-13	
Auftraggeber: <i>Client:</i>	i.safe MOBILE GmbH i_Park Tauberfranken 10, 97922 Lauda-Koenigshofen, Germany			
Prüfgegenstand: <i>Test item:</i>	Rugged tablet computer			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	M93A01			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart B ICES-003 Issue 6 January 2016			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2020-05-13			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A002024323-003			
Prüfzeitraum: <i>Testing period:</i>	2020-06-04 – 2020-06-14			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i> Lin Lin	genehmigt von: <i>authorized by:</i> Winnie Hou			
Datum: <i>Date:</i> 2020-10-09		Ausstellungsdatum: <i>Issue date:</i> 2020-10-09		
Stellung / Position:	Senior Project Manager	Stellung / Position:	Technical Certifier	
Sonstiges / Other: FCC ID: 2AACZ-M93A01 IC: 11122A-M93A01 HVIN: M93A01				
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 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				
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>				

V05

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Test Summary

5.1.1 Conducted Emission on AC Mains

RESULT: Pass

5.1.2 Radiated Emission

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: Photographs of the Test Set-up

Appendix B: Test Results of FCC Part 15B and ICES-003.

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China

FCC Registration No.: 694916

ISED wireless device testing laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

TÜV Rheinland (Shenzhen) Co., Ltd.

Conducted Emission on AC Mains				
Equipment	Manufacturer	Model No.	Serial No.	Cali. until
EMI Test Receiver	R&S	ESR3	102428	03.09.2020
Artificial Mains Network	R&S	ENV216	102333	19.08.2020
Artificial Mains Network	R&S	ENV432	101411	19.08.2020
Attenuator	R&S	ESH2Z31	100300	19.08.2020
EMC32 test software	R&S	EMC32(Ver.10.50.01)	N/A	N/A
Radiated Emission (3m chamber)				
Equipment	Manufacturer	Model No.	Serial No.	Cali. until
3m SAC	ETS	SAC3	CT001632-Q1362	23.08.2021
EMI Test Receiver	R&S	ESR7	102111	04.01.2021
Horn Antenna	R&S	HF907	102706	01.09.2020
Preamplifier	FIT	SCU-18F	180077	19.08.2020
Active magnetic loop antenna	SCHWARZBECK	FMZB1519B	00080	19.08.2020
Trilog-Broadband antenna	SCHWARZBECK	VULB9168	0945	12.09.2020
Switching Controller Interface	R&S	OSP 120	102039	N/A
EMC32 test software	R&S	EMC32(Ver.10.50.01)	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.

Parameter	Uncertainty
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 dB
Radiated Emission (3m SAC), 30MHz to 1000MHz	± 4.52 dB
Radiated Emission (3m SAC), above 1000MHz	± 4.37 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix 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 EUT is a tablet which supports Bluetooth, 2.4G Wi-Fi 802.11 b/g/n, 5G Wi-Fi 802.11a/n/ac, NFC and GSM/WCDMA/LTE wireless technology. This report is for digital portion.

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	Rugged tablet computer
Type Designation	M93A01
Trade Mark	i.safe MOBILE
Operating Voltage:	DC 5V@2A input via power adapter
Testing Voltage	AC 120V@60Hz
Power Adapter	Model: ICP12-050-2000B Input: AC 100-240V~50/60Hz, 0.3A Output: DC5V@2A
Other accessories	USB Cable Magnetic absorption charging cable 3.5mm Earphone

3.3 Independent Operation Modes

The basic operation modes are:

1. Transfer data between the EUT and the PC with USB Cable
2. Telecom Idle + BT+NFC+ WLAN2.4G+GPS RX + Playing MP4 (SD Card, 1K Color bar) + Earphone + adapter
3. Telecom Idle + BT+ NFC+WLAN5G+GPS RX + Playing MP4 (SD Card, 1K Color bar) + Earphone (Digital USB Type C) + adapter
4. Telecom Idle + BT+ NFC+WLAN2.4G+GPS RX + Camera(Front) + Earphone + 4 Pin charging
5. Telecom Idle + BT+ NFC+WLAN2.4G+GPS RX + Camera(Back+Flash ligh always on) + Earphone + adapter
6. GSM traffic+ BT + NFC+WLAN +GPS RX + Earphone + adapter
7. WCDMA traffic + BT + NFC+ WLAN +GPS RX + Earphone + adapter
8. LTE traffic + BT + NFC+WLAN +GPS RX + Earphone + adapter

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form

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 C63.4: 2014.

4.3 Special Accessories and Auxiliary Equipment

Table 3: List of Auxiliary Equipment

Equip. No.	Description	Manufacturer	Model	S/N
01	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)

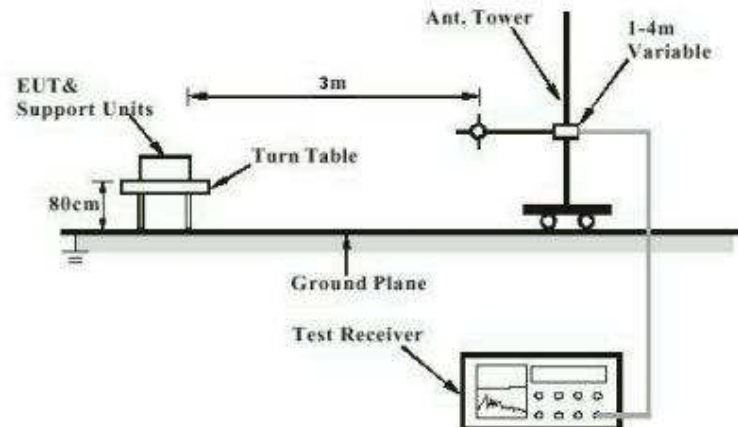


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

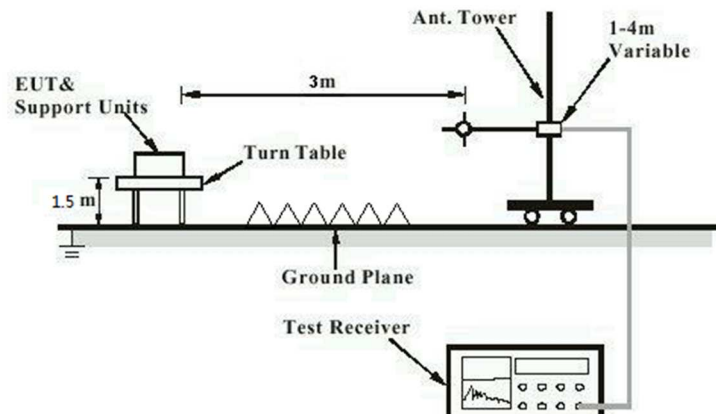
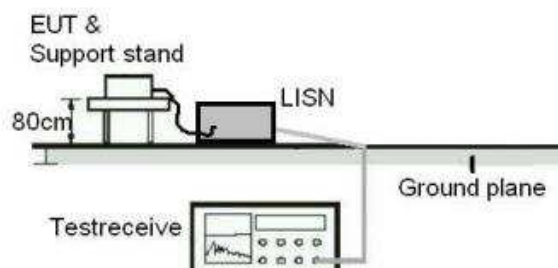


Diagram of Measurement Configuration for Mains Conduction Measurement



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5 Test Results

5.1.1 Conducted Emission on AC Mains

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

Test standard	: FCC Part 15.107(a) ICES-003
Basic standard	: ANSI C63.4: 2014
Frequency range	: 0.15 – 30MHz
Limits	: FCC Part 15.107(a) ICES-003 Table 2
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 04.06.2020 – 09.06.2020
Input voltage	: AC 120V@60Hz
Operation mode	: Mode 1 to Mode 8
Earthing	: Not connected
Ambient temperature	: 24 °C
Relative humidity	: 53 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

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*Page 12 of 13***5.1.2 Radiated Emission****RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.109(a) ICES-003
Basic standard	: ANSI C63.4: 2014
Frequency range	: 30 – 40000MHz
Classification	: Class B
Limits	: FCC Part 15.109(a) ICES-003 Table 5 & Table 7
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 10.06.2020 – 14.06.2020
Input voltage	: AC 120V@60Hz
Operation mode	: Mode 1 to Mode 8
Earthing	: Not connected
Ambient temperature	: 24 °C
Relative humidity	: 53 %
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

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