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Ontploffing Beskermingsdienste
 Explosion Prevention Services

Reg No.: 2012/055110/07; VAT No.: 4830273027

ACCREDITED TEST LABORATORY

IN TERMS OF THE ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

INSPECTION AUTHORITY CERTIFICATE

I.SAFE MOBILE GMBH
I_PARK TAUBERFRANKEN 10
97922 LAUDA-KOENIGSHOFEN
GERMANY

Issued: 2018/09/28
Expire: 2021/08/14
Revision No.: 2

Equipment: HMT-1Z1, intrinsically safe Head-Mounted-Tablet
Manufacturer: i.safe MOBILE GmbH
Address: i_Park Tauberfranken 10, 97922 Lauda-Koenigshofen, Germany
Model/Type: T1100S
Serial No.: Units imported between Issued and Expiry dates.

Applicant:
I.SAFE MOBILE GMBH

Inspection Authority Number: **MTEx-M/18.0261 X**

MTEx Record Number: **MTEx 0436/18.0261**

Ex Rating: Ex ia I Ma IP65

Standards used:

SANS 60079-0: 2012 Ed.5 IEC 60079-0: 2011 Ed.6	Explosive atmospheres – Part 0: General requirements.
SANS 60079-11: 2012 Ed.4 IEC 60079-11: 2011 Ed.6	Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i".

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

Hazardous Area: Zone 0
Occurrence: Continuous, Intermittent and under abnormal conditions
Hazardous Gas Group: Group I
Permitted Temperature: 150°C

Equipment Protection level (EPL):

EPL		Definition
Gas	Dust	
Ma		Equipment for installation in a mine susceptible to firedamp, having a "very high" level of protection, which has sufficient security that it is unlikely to become an ignition source in normal operation, during expected malfunctions or during rare malfunctions, even when left energized in the presence of an outbreak of gas.

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This certification indicates compliance with R10.1 of the Mines Health and Safety Act and/or EMR 8(1) of the Occupational Health and Safety Act, provided that the apparatus is used as prescribed in accordance with:

- 1) Any conditions set out in this Certificate;
- 2) This certificate only covers equipment imported between the "Issued" and "Expiry" dates;
- 3) When the supporting Q.A.N. (Quality Assurance Notification) of the equipment manufacturer expires, it is the responsibility of the applicant (as mentioned above) to submit a valid Q.A.N to MTEEx Laboratories.
- 4) The test results presented in this Ex Test Report relate only to the item or product tested.

1. OVERVIEW

The intrinsically safe, rugged industrial Head-Mounted Tablet has been designed for use in explosion hazardous areas of zone 1 and 21. The device provides numerous technologies like Wi-Fi, Bluetooth, GPS, 3-axis accelerometer, magnetometer and gyroscope. Equipped with a 16MP camera, display with 20° field-of-view, internal 91 dB loudspeaker, 4 digital microphones with active noise cancellation which allows accurate voice recognition even in 95 dBA of typical industrial noise.

With exception of accessories connecting to the audio jack, only RealWear accessories approved by i.safe MOBILE GmbH are allowed to be used with the HMT-1Z1 inside explosion hazardous areas, and they are only approved when used with the HMT-1Z1. For a list of approved accessories, see:

<https://www.realwear.com/...>

<http://www.isafe-mobile.com/...>

2. REASON FOR REVIEW

ARP 0108: 2014 Requirement.

Rev. 1: To include Ex ia (double protection)

Rev. 2: To indicate usage only for Group I

3. DOCUMENTATION PROVIDED

- IECEx Certificate of conformity (IECEx EPS 17.0004X)
- Quality Assessment Report (DE/EPS/QAR12.0003/05)
- CSA Group Test Report (70170800)

4. ELECTRICAL / SAFETY PARAMETERS

Power Supply: The device has a fixed installed rechargeable battery.
Li-Ion battery $U_0 = 3.8 \text{ V}$ ($U_{0_max} = 4.2 \text{ V}$) / 3.48 Ah / 12.528 Wh

USB Interface: The device has an USB interface for charging and data transfer. The opening of the USB interface cover in explosive atmospheres is not permitted.
Wired data connection and charging is only allowed outside explosion hazardous areas and only with the i.safe PROTECTOR cable from i.safe MOBILE GmbH

Audio Jack: The device has a 3.5 mm audio jack. The Ear Bud Hearing Protection Headphone Model H1100G or other accessory fulfilling the entity parameters are allowed to use inside explosion hazardous areas. The audio jack interface is not mandatory to cover.

Entity parameters for the audio jack (AJ):

Output voltage (spark): $U_{AJ_spark} = U_{o_max} = 4.2\text{ V}$
 Output voltage (thermal): $U_{AJ} = U_o = 3.8\text{ V}$
 Output current (spark): $I_{o_max} = 249\text{ mA}$ (linear characteristic)
 Output power (thermal): $P_o = 214\text{ mW}$

Effective internal capacitance: $C_i = 0\text{ }\mu\text{F}$
 Effective internal inductance: $L_i = 0\text{ }\mu\text{H}$
 Internal resistance: $R_{AJ_res} = 16.841\text{ Ohm}$

It is also allowed to connect an approved headset with high resistance.

Permissible input voltage: $U_i = 4.2\text{ V}$
 Permissible input power: $P_i = 10\text{ mW}$

Gas group: IIB

Lo [mH]	4.1	2	1	0.5	0.2	0.1	0.05	0.02	0.01	0.005
Co [μF]	12	19	25	32	45	59	83	150	310	1000

By using gas group IIB parameters for accessory, the gas group of the combination (HMT-1Z1 with approved accessory) is reduced to gas group IIB. Group IIB parameters apply for Group I as well.

5. INSTALLATION INSTRUCTIONS

The instructions provided with the product shall be followed in detail to assure safe operation.

6. CONDITIONS OF CERTIFICATE (X)

- The battery shall be charged outside explosion hazardous areas only.
- The device must be protected from impacts with high impact energy, against excessive UV light emission and high electrostatic charge processes.
- The permitted ambient temperature range is -20°C to $+60^{\circ}\text{C}$.
- The SIM card slot (if any) must be blanked off (e.g. filling the SIM card slot with an encapsulant).
- No external accessories may be connected to the device in the hazardous area.
- A maximum of 500mW transmitting power limit applies for Group I use.

7. MARKING

For validity purposes, the following marking must be added to all equipment covered by this certificate:

Manufacturer: i.Safe Mobile GmbH
Supplier: i.Safe Mobile GmbH
Equipment: HMT-1Z1 Intrinsically Safe Head-Mounted-Tablet
Model/Type: T1100S
IA Number: MTEEx-M/18.0261 X
Ex Rating: Ex ia I Ma IP65
Serial No.: -----

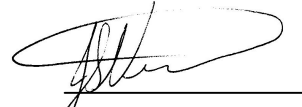
Note: It is the responsibility of the supplier to ensure that the marking label complies with the ARP 0108: 2014, clause 7.

Authorized by:



D. Young, Testing Officer

Reviewed by:



JS Venter, Editor.

MTEEx Laboratories

Note: This document may not be reproduced except in full.

MTEEx Laboratories takes no responsibility for any non-conforming tests / assessments / results which is not in compliance with the relative Standards. By marking the equipment as mentioned in the documentation, the manufacturer takes full responsibility that the equipment has indeed complied with the original type assessment and has been subjected to any routine verification(s) / test(s) respectively.

End of Certificate