

1. **EC-TYPE EXAMINATION CERTIFICATE**
2. **Equipment or Protective System Intended for use  
in Potentially explosive atmospheres  
Directive 94/9/EC**
3. Reference: **VTT 04 ATEX 062X**
4. Equipment: **Hand lamp**  
Certified type: **MICA ML-800**
5. Manufactured by: **Mica Elektro Oy LTD.**
6. Address: **P.O. Box 42  
FIN-00381 Helsinki  
Finland**
7. This equipment or protective system and any acceptable variations thereto is specified in the schedule and possible supplement(s) to this Certificate and the documents therein referred to.
8. VTT Industrial Systems, notified body number 0537, in accordance with Article 9 of the Council Directive 94/9/EC of March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmospheres given in Annex II to the Directive  
  
The examination and test results are recorded in confidential report no TUO26-044711.
9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with the standards:

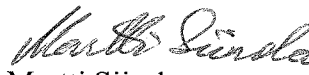
**EN 50014 (1997) +A1&A2  
EN 50020 (2002)**



10. If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
11. This EC-Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. This certificate does not cover these.
12. The marking of the equipment or protective system shall include the following:

**II 2 G****EEx ib IIC T4**

Espoo, 8.11.2004

VTT INDUSTRIAL SYSTEMS  
Electrical Ex-ApparatusRisto Sulonen  
Senior research scientist**I018**  
(EN45004, liite A)Martti Siirola  
Research scientist

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13. **Schedule**

14. **EC-TYPE EXAMINATION CERTIFICATE VTT 04 ATEX 062X**

15. Description of Equipment

The rechargeable hand lamp type MICA ML-800 is a portable lighting device. The hand lamp is equipped battery unit with five sealed Metal Hydride (NiMH) rechargeable cells (5 x 1,2 V, 1800mAh) and an electrical fuse. The light source of the lamp is a high power 1 W or 3 W LED. The housing of the light unit is of anti-static plastic and aluminium. The light unit is equipped with a switch.

Documents:

MICA ML-800 ATEX product description, 2 pages, 22.10.2004  
ML-800 ATEX bill of materials, Doc. No. 001663\_X, 17.08.2004  
ML-800 ATEX lamp unit drawings, 2 pages, Doc. No. 001663\_X, 16.08.2004  
ML-800 ATEX battery unit bill of materials, Doc. No. 001659, 17.08.2004  
ML-800 battery unit assembly drawing, Doc. No. 001659\_X, 16.08.2004  
ML-800 Electrical Block diagram, Doc. No. 001711\_X, 31.03.2004  
ML-800 protective circuit schematic drawing, Doc. No. 001697\_X, 26.10.2004  
ML-800 protective circuit layout, 4 pages, Doc. No. 001695\_X, 4.11.2004  
ML-800 fuse board bill of material, 2 pages, Doc. No. 001685\_X, 3.11.2004  
ML-800 main board schematic drawing, 2 pages, Doc. No. 001696\_X, 28.09.2004  
ML-800 main board layout, 4 pages, Doc. No. 001694\_X, 4.11.2004  
ML-800 main board 1 W bill of material, 2 pages, Doc. No. 001684\_X, 3.11.2004  
ML-800 main board 3 W bill of material, 2 pages, Doc. No. 001717\_X, 5.11.2004  
Fuse board assembly, Doc No. 001707\_X, 16.08.2004  
Main board assembly, Doc No. 001693\_X, 03.09.2004  
Identification plate, Mica ML-800 ATEX, Doc No. 001709\_X, 29.10.2004

16. Report No. TUO26-044711

17. Special conditions for safe use:

- The hand lamp must be charged according to the manufactures recommendations with a MLC charging unit..
- The hand lamp must not be opened or charged in hazardous area.

18. Essential Health and Safety Requirements

Met by compliance with the standards referred in point 9.

Espoo, 8.11.2004

VTT INDUSTRIAL SYSTEMS  
Electrical Ex-Apparatus



**I018**  
(EN45004, liite A)



Risto Sulonen  
Senior research scientist



Martti Siirola  
Research scientist

1. **SUPPLEMENT 2 TO EC-TYPE EXAMINATION  
CERTIFICATE VTT 04 ATEX 062X**

2. Equipment: **Hand lamp**

Certified type: **MICA ML-800**

3. Manufactured by: **Mica Elektro Oy LTD.**

5. Compliance with the Essential Health and Safety Requirements has been assured by compliance with the standards:

EN 60079-0 (2006)  
EN 60079-11 (2007)  
EN 60079-28 (2007)  
EN 61241-0 (2006)  
EN 61241-11 (2006)

The examination and test results are recorded on the confidential reports TUO26-044711 and VTT-S-00583-08

6. The marking of the equipment shall include the following:



**II 2GD**

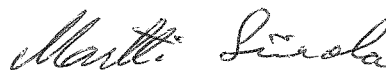
**Ex ib op is IIC T4  
Ex iD 21 T130 °C**

Espoo, 17.01.2008

VTT  
Technical Research Centre of Finland



Risto Sulonen  
Senior research scientist



Martti Siirola  
Research scientist



1. **SUPPLEMENT 3 TO EC-TYPE EXAMINATION  
CERTIFICATE VTT 04 ATEX 062X**

2. Equipment: **Hand lamp**

Certified type: **MICA ML-800**

3. Manufactured by: **Mica Elektro Oy LTD.**

4. Conformity of new plastic material PRE-ELEC TP9881, alternative to PRE-ELEC TP8223, with standard EN 60079-0 (2007) has been assessed by relevant measurements according to clause 26.13. The results of the measurements show that surface resistivity of the material is  $\leq 10^9 \Omega$ .

5. New documents:

ML-800 ATEX BATTERY UNIT BILL OF MATERIALS, Document Id:001659, Date:12.06.2009  
ML-800 ATEX BILL OF MATERIALS, Document Id:001663\_X, Date:12.06.2009

Espoo, 15.06.2009

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