

1 **EU TYPE EXAMINATION CERTIFICATE**
2 **Radio Equipment Directive 2014/53/EU – Annex III**

3 EU Type Examination Certificate No.: ENW22RED0026
4 Equipment: Altair io 4
5 Manufacturer: MSA Innovation, LLC
6 Address: 1000 Cranberry Woods, Cranberry Township, PA 16066, USA

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Element Materials Technology Portland-Evergreen, Inc. (hereafter referred to as Element Materials Technology) Notified Body number 0981 in accordance with Article 26 of the Council Directive 2014/53/EU of 16 April 2014, certifies that this equipment has been found to comply with the Essential Requirements relating to the design and construction of radio equipment given in the following Articles of the Directive:

3.2 – Radio spectrum

The examination and test results are recorded in the confidential reports: Element reports: MSAS0022.10 Rev 1, MSAS0022.6 Rev 1, MSAS0022.5 Rev 1, MSAS0022.16, MSAS0022.14 Rev 1, SGS report 288405-3-1, SGS report: 281943-5-1, SGS report 300489-1-6, Verkotan ETSI EN 303 413 Conformance Test Report

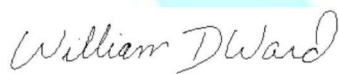
9 Compliance with the Essential Requirements, with the exception of those listed in section 19 of the schedule to this certificate, has been assured by compliance with:

EN 300 328 V2.2.2	EN 301 908-1 V13.1.1	EN 301 908-13 V13.1.1
EN 303 413 V1.1.1	EN 301 511 V12.5.1	EN 300 330 V2.1.1

10 This EU-Type Examination certificate relates only to the design and construction of the specified equipment in accordance with Directive 2014/53/EU. Further requirements of this Directive apply to the manufacture and supply of this equipment. These are not covered by this certificate.

11 This certificate and its schedules may only be reproduced in its entirety and without change. This certificate is issued in accordance with the rules of the Element Materials Technology Radio Certification Scheme and remains valid for only so long as the equipment conforms to the type described herein.

12 Any deviation to the design and construction of the specified equipment that is not certified by Element Materials Technology shall render this certificate invalid.



Dennis Ward, Senior Engineer

Issue date: 2022-04-01

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13 **SCHEDULE TO EU TYPE EXAMINATION CERTIFICATE**

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15 **General description of equipment included within the scope of this certificate**

The Altair io 4 Gas detector is a cloud connected handheld device that can simultaneously detect up to 4 different gases. The Altair io4 utilizes LTE-M connectivity for connection to our own MSA Safety io Grid Live Monitor cloud platform for remote emergency alerts, configuration, OTA firmware updates and data logging among some of its features. For international modules the LTE module also utilizes a 2G fallback.

GNSS is used for location awareness and reporting. Bluetooth is used for configuration and setup. RFID is used for check in and check out of the detectors by individual users.

16 **Technical description**

Frequency bands:	LTE Band 20: Transmit 832-862 MHz, Receive 791-821 MHz
Modulation:	QPSK, 16QAM
Transmit power:	23 dBm, conducted
Type of antenna and gain:	PIFA/-1.62 dBi
Frequency bands:	LTE Band 8: Transmit 880-915 MHz, Receive 925-960 MHz
Modulation:	QPSK, 16QAM
Transmit power:	23 dBm, conducted
Type of antenna and gain:	PIFA/-1.62 dBi
Frequency bands:	LTE Band 3: Transmit 1710-1785 MHz, Receive 1805-1880 MHz
Modulation:	QPSK, 16QAM
Transmit power:	23 dBm, conducted
Type of antenna and gain:	PIFA/2.32 dBi
Frequency bands:	E-GSM 900 MHz: Transmit 880 – 915 MHz, Receive 925 – 960 MHz
Modulation:	GMSK
Transmit power:	33 dBm, conducted
Type of antenna and gain:	PIFA/-1.62 dBi
Frequency bands:	DCS 1800 MHz: Transmit 1710 – 1785 MHz, Receive 1805-1880 MHz
Modulation:	GMSK
Transmit power:	30 dBm, conducted
Type of antenna and gain:	PIFA/2.32 dBi
Frequency bands:	Bluetooth Low Energy: 2402 – 2480 MHz
Modulation:	GFSK
Transmit power:	6.3 mW
Type of antenna and gain:	Ceramic chip/1 dBi
Frequency bands:	13.56 MHz RFID: 13.56 MHz
Modulation:	ASK
Transmit power:	5 mW
Type of antenna:	PCB trace, Loop
Frequency bands:	GNSS: Receive 1559-1609 MHz
Modulation:	BPSK
Transmit power:	Receive only
Firmware version:	SARA-R412M - Modem: M0.12.00/Application: A.02.29
Software version:	BT121-A - 1.8.0-218 release/PNGM-6398-rev2-emc-ELEMENT:23

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17 **Technical Documents describing the certified equipment**

The list of technical documents is given in Appendix A to this schedule.

18 **Test report No. (associated with this certificate issue):**

Element reports:

MSAS0022.10 Rev 1,
MSAS0022.6 Rev 1,
MSAS0022.5 Rev 1,
MSAS0022.16, MSAS0022.14 Rev 1

SGS reports:

288405-3-1,
281943-5-1,
300489-1-6,

Verkotan ETSI EN 303 413 Conformance Test Report

19 **Essential Requirements (Directive Article 3)**

Article 3.2 is covered by application of the standards listed in section 9 of this certificate and the assessment conducted in the test report/s listed in section 8 of this certificate.

20 **“Restrictions on Use”, if any:**

None.

21 **“Routine tests”, if any:**

None.

22 **Other information, if any:**

EU Type Examination Certificate ATCB023361, issue 1 submitted for u-blox SAR-R412M module.

23 **Photographs:**



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24 Details of markings



25 Details of variations to this certificate:

None

26 Notes to CE marking:

In respect of CE Marking, Element Materials Technology accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

27 Notes to this certificate:

Element Materials Technology certification reference: Project number TS-MSAS-0009

Throughout this certificate, the date format yyyy-mm-dd (year-month-day) is used.

Notified Body 0981 is the designation for Element Materials Technology, Portland-Evergreen Inc..

28 Conditions for the validity of this certificate:

This certificate remains valid for so long as:

- (i) The equipment listed in section 4 is manufactured in accordance with the technical documents listed in Appendix A of this certificate.
- (ii) The standards listed in section 9 of this certificate continue to satisfy the Essential Requirements relating to the design and construction of radio equipment given in the Articles of the Directive listed in section 8 of this certificate and the generally acknowledged state of the art (e.g. as determined by the publishers of those standards).

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APPENDIX A - LIST OF TECHNICAL DOCUMENTS

Title:	Document/file name:	Rev. Level:	Issue date:
Technical file	Altair io 4 Technical Construction File for Element	0	2022-04-01

