IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx CSAE 24.0074X**

Certificate history:

Status: **Current**

Issue No: 0

Date of Issue: 2025-03-18

Applicant: **TEKTELIC Communications Inc.**
7657 10th Street NE
Calgary, Alberta T2E 8X2
Canada

Equipment: **Kona Macro Ex Gateway Model: T000906x, T000907x See annexe for more information**

Optional accessory:

Type of Protection: **Flameproof 'db', Dust Enclosure 'tb'**

Marking: Ex db [ia Ga] IIB+H2 T6 Gb
Ex tb [ia Da] IIIC T85 °C Db
IP66
-40 ˚C ≤ Tamb ≤ 60 ˚C

Approved for issue on behalf of the IECEx Certification Body: **Michelle Halliwell**

Position: **Senior Director of Operations**

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside CH5 3US
United Kingdom

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Manufacturer: **TEKTELIC Communications Inc.**
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Manufacturing locations: **TEKTELIC Communications Inc.**
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This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-31:2022 Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
Edition:3.0

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

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

GB/CSAE/ExTR25.0020/00

Quality Assessment Report:

US/UL/QAR21.0004/03

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The Kona Macro Ex Gateway is an outdoor LoRaWAN IoT gateway that supports the full range of LoRa WAN channels. It consists of Internal and Gateway PCB along with four RF channels PCB. The PCBs housed in a flameproof enclosure that allows it to be used in hazardous areas.

The RF PCB is an IS circuit which is separated from the non-IS circuit (Internal and Gateway) by creating galvanic isolation with the help of two blocking capacitors.

See annexe for more information

SPECIFIC CONDITIONS OF USE: YES as shown below:
See annexe

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Equipment (continued):

Conditions Of Manufacture

1. Sample with NPT thread entries are not provided to measure the threads and engagement, and it is Tektelic's responsibility to comply with the NPT threads as per table 5 of IEC / EN 60079-1:2014
2. As per Tektelic’s declaration there is no capacitance element and maximum inductance of 5uH which meets the requirement. It is Tektelic’s responsibility to maintain the capacitance and inductance values of the Antennas.

Annex:

IECEx CSAE 24.0074X Issue 0 Annexe_1.pdf

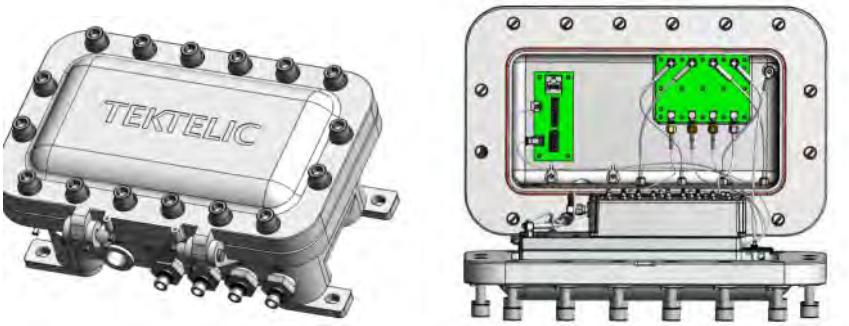
Product Name / Model Number

Kona Macro Ex Gateway Models	
Models	**Descriptions**
T0009060	North America 915 MHz FDD, Cellular, Geolocation
T0009061	Europe 868 MHz TDD, Cellular, Geolocation
T0009062	Australia 915 MHz TDD, Cellular, Geolocation
T0009063	Australia 923 MHz TDD, Cellular, Geolocation
T0009064	Brazil 915 MHz TDD, Cellular, Geolocation
T0009065	Singapore 923 MHz TDD, Cellular, Geolocation
T0009066 – T0009079	See note below
Note: The models numbers above can be shown as T000906x, T000907x. where x = 0 thru 9 are options on the Gateway PCBA in support of different geographic regions (RF frequencies, FDD/TDD operating modes, geolocation, etc.)	

The differences between models are limited to the internal Gateway PCBA with RF filter with respect to RF regions and functional capabilities

EQUIPMENT (continued)

Figure 1 illustrates the overall external view of the Kona Macro Ex Gateway.



Specifications:

Attribute	Specifications
Dimensions	352 mm (13.86″) wide x 247 mm (9.72″) high x 158 mm (6.22″) deep (excluding mounting ears which add 10 mm (0.39″) to the depth)
Weight	15 kg (33 lbs)
Operating Temperature	-40 °C to 60 °C (-40 °F to 140 °F)
Relative Humidity	10% to 100%
Operating Altitude	-60 m to 4,000 m (-197 ft to 13,123 ft)
Power Input, Direct DC	48 Vdc nominal, 37 to 57 Vdc operating range (after 42 V maximum start-up threshold). Positive or negative ground referenced feed. SELV or LPS source required. Maximum 10 A input overcurrent protection.
Power Input, PoE	IEEE 802.3at Mode A or Mode B or 4-pair mode
Power Consumption	20 W maximum

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The details for the component certified stopping Plugs, RF connectors and Breather associated with the equipment are listed below:

Ex component	Model	Technical Specification	Certificate Number	Marking
Stopping Plug	U5.25.S.SC ALTERNATE U5.25.N.SC	Thread designation: M25 x 1.5, IP66 O-Ring: Silicone (-50 to +230C)	IECEx SIR 07.0048X & Sira 07ATEX1175X	IECEx & ATEX: Ex db IIC Gb & Ex eb IIC Gb & Ex tb IIIC Db
Stopping Plug	U5.34.S.SC ALTERNATE U5.34.N.SC	Thread designation: ¾" NPT, IP66 O-Ring: Silicone (-50 to +230C)	IECEx SIR 07.0048X & Sira07ATEX1175X	IECEx & ATEX: Ex db IIC Gb & Ex eb IIC Gb & Ex tb IIIC Db
Stopping Plug	U5.20.S.SC ALTERNATE U5.20.N.SC	Thread designation: M20 x 1.5, IP66 O-Ring: Silicone (-50 to +230C)	IECEx SIR 07.0048X & Sira07ATEX1175X	IECEx & ATEX: Ex db IIC Gb & Ex eb IIC Gb & Ex tb IIIC Db
RF connector	iSOLATE-CT-01	BULKHEAD, EXPLOSION PROOF, N-TYPE FEMALE TO SMA FEMALE Thread designation: M20 x 1.5 Ta: -60°C to 150°C	IECEx TRC 14.0024X & TRAC14ATEX0056X	IECEx & ATEX: Ex d IIC Gb Ex tb IIIC Db
Breather	Bd.20.S.SC ALTERNATE Bd.20.N.SC	Thread designation: M20 x 1.5, IP66 O-Ring: Silicone (-50 to +80C)	IECEx SIR 07.0045U & Sira 07ATEX1174U	IECEx & ATEX: Ex db IIC Gb & Ex tb IIIC Db

Specific Conditions of Use

1. The equipment supply shall be powered with an approved ES1, PS2 Power over Ethernet (PoE) IEEE 802.3at (Type 2 Class 4) or ES1 (SELV), PS2 Limited Power Source (LPS) power adaptor or DC input source earthed suitable for use at altitude 4000m. This external power supply is not part of evaluation.

2. The Cable selection and provisioning along with required entry hardware such as cable glands, adapters, mating connector to RF connectors and conduit fittings are to be site selected and provided. All cables and hardware are not a part of certification and shall be suitably approved and shall be in compliance with IEC 60079-14 requirements, providing and maintaining a degree of protection of at least IP66.

3. The equipment shall be reliably earthed in final installation through a permanently connected Protective Earth (PE) Ground conductor. The Protective Earth Ground connection is made through a double hole lug to the termination point located on the side of the enclosure. The cable lug must have 6.35 mm ø holes on 16 mm centers (0.25" ø on 0.63" centers). The required ground cable gauge is #10 AWG (4 mm2) minimum. This ground connection to earth is always required. Follow steps from the Manual for Ground cable installation.

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4. External fasteners used for securing flameproof joints shall have a minimum property class of A4-70.

5. The flameproof joints are not intended to be repaired.

6. The fixed installation equipment is coated with paint finish and may generate an ignition capable level of electrostatic charge under certain extreme conditions. The user shall ensure that the equipment is not installed in a location where it might be subjected to external conditions of high airflow rate that might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment shall be done only with damp cloth.

7. For the DC input power connector, the DC positive pin must be at a positive potential relative to the DC negative pin. If the polarity is reversed, the unit will not sustain damage but will not operate until the connection polarity is corrected.

8. The interfaces between the male thread of the Ex-component – Breather (Model: Bd.a.b.c.d) and Stopping Plug (Model: U5.a.b.c.d) and an associated enclosure and female thread of the products and the cable entry device cannot be defined. Therefore, it is the user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.

9. The threaded spigots of Type 'Bd' Breather Drains are not permitted to protrude into the associated enclosure to maintain their ingress protection ratings.

10. The threads of the internal plug of the Type 'Bd' Breather Drains must be fully tightened within the main body and not protrude above the body surface.

11. Type 'Bd' breather/drains are only suitable for bottom entry.

12. Stopping Plug (U5.a.b.c.d) is not to be used in conjunction with any other cable entry device.

13. If the Ex component RF Connector iSOLATE-CT-01 is installed with a suitable seal it must be ensured that at least 7 full threads are engaged.

14. End users may select their own antenna and it is end users' responsibility to choose the antenna that meets the requirement of Simple Apparatus as per Clause 5.7, IEC 60079-11, Edition 6

15. End users may select their own RF cable and it is end users' responsibility to choose cable with following limits:
Maximum RF cable length = 42 m
Maximum RF cable capacitance = 250 pF/m
Maximum RF cable inductance = 0.6 µH/m

16. The antenna shall be fed by a minimum 50 Ω source impendence.

17. Antenna also must provide isolation from earth when required and be installed according to the instructions provided in the manual. Additionally, the radio frequency threshold power (9 kHz to 60 GHz) must not exceed 2W, in compliance with Clause 6.6.2 of EN / IEC 0079-0:2017.

18. The Maximum Um shall not exceed 60Vdc.

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