UKCA
UK Conformity Assessed

UK DECLARATION OF CONFORMITY

Knock Sensor v1.0

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1. Manufacturer

Legal name:	RSensing
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Website:	rsensing.uk
Registered address:	15 Dawson Road, Southampton, SO19 0SP, United Kingdom

2. Product Identification

Product name:	Knock Sensor
Model / version:	Knock Sensor v1.0
Description:	Battery-powered Bluetooth Low Energy vibration monitoring sensor. Fully sealed housing with no external access to internal circuitry. General-purpose instrument for vibration and shock detection. No electrical connection to vehicle.
Enclosure:	Fully sealed housing, 58 × 28 × 18 mm. No externally accessible conductive parts.
Radio technology:	Bluetooth Low Energy 5.0, 2400–2483.5 MHz, 0 dBm TX power
Power supply:	CR2032 lithium coin cell, 3 V. No mains connection.
Radio module:	Raytac MDBT50Q-P1MV2 (nRF52840) or Laird BL654 (nRF52840) — dual-source production variants
Module identification:	Module variant is identified by the first character of the sensor's serial number printed on the product label: R = Raytac MDBT50Q-P1MV2, B = Laird BL654 (e.g. R0102, B0102).
Intended market:	United Kingdom
Production scale:	Small-batch / early-stage production

3. Declaration

We, RSensing, declare under our sole responsibility that the product identified above is in conformity with the relevant UK statutory requirements listed below, when used in accordance with the instructions for use.

This declaration covers all production variants of the Knock Sensor v1.0. Where the product incorporates either the Raytac MDBT50Q-P1MV2 or the Laird BL654 radio module as dual-source production variants, both modules are based on the Nordic nRF52840 SoC and operate on identical firmware apart from module-specific GPIO pin assignments for the status LED and button (which have no effect on RF parameters, radio performance, or module certification), at identical RF parameters (0 dBm TX power), and both hold equivalent pre-certifications including UKCA. The RF compliance basis is identical for both variants.

4. Applicable UK Legislation

Statutory Instrument	Essential Requirements
UK Radio Equipment Regulations 2017 (S.I. 2017/1206)	Health & safety (Reg. 9); EMC (Reg. 10); Efficient use of radio spectrum (Reg. 11)
Electromagnetic Compatibility Regulations 2016 (S.I. 2016/1091)	Protection requirements (Sch. 1, para. 1); Immunity (Sch. 1, para. 2)
Electrical Equipment (Safety) Regulations 2016 (S.I. 2016/1101)	Safety of electrical equipment (battery-powered apparatus)
Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (S.I. 2012/3032, as amended)	Restriction of hazardous substances (Pb, Hg, Cd, Cr6+, PBB, PBDE, 4 phthalates) — see KS-ROHS-001
Waste Batteries and Accumulators Regulations 2009 (S.I. 2009/890)	Heavy-metal limits for the CR2032 cell (Hg, Cd, Pb) — see KS-ROHS-001

5. Conformity Assessment Procedure

Conformity has been assessed using the procedure set out in UK RER 2017, Schedule 2: Internal Production Control (Module A).

MODULE A — INTERNAL PRODUCTION CONTROL

No notified or approved body has been involved in this conformity assessment. RSensing has self-assessed the product against the applicable designated standards and essential requirements, on the basis of the technical file described in Section 7. This route is permitted under UK RER 2017 for radio equipment to which designated standards have been applied.

No accredited third-party EMC or radio test report has been obtained for this product at the time of issue. Conformity is based on:

- Independent type-certification of the integrated radio module under modular approval. Both production variants (Raytac MDBT50Q-P1MV2 and Laird BL654) are pre-certified under UKCA, CE RED 2014/53/EU, FCC Part 15.247, IC RSS-247, and Bluetooth SIG, covering RF performance;
- Application of designated EMC standards (BS EN 55032, BS EN 55035) in the product's circuit and enclosure design;
- A fully sealed, non-conductive enclosure with no externally accessible conductive parts, reducing ESD exposure;
- Documented engineering rationale in the EMC Self-Assessment Plan (KS-EMC-TP-001) and EMC Standard Justification (KS-EMC-SJ-001).

MANUFACTURER'S RESPONSIBILITY

RSensing accepts full responsibility for this self-assessment and for the accuracy of this declaration. RSensing may commission accredited third-party EMC and radio testing at a future date as production scales; this declaration will be reissued if and when such testing is completed.

6. Standards Applied

Standard	Title	Scope
BS EN 55032:2015+A1:2020	Multimedia equipment — Emission requirements	Emissions Class B
BS EN 55035:2017+A11:2020	Multimedia equipment — Immunity requirements	Immunity
BS EN IEC 61000-4-2:2009	ESD immunity	±4 kV / ±8 kV
BS EN IEC 61000-4-3:2020	Radiated RF immunity (80 MHz – 1 GHz)	3 V/m
ETSI EN 300 328 v2.2.2	Wideband data in 2.4 GHz ISM band	RF (via module)

Compliance with ETSI EN 300 328 is established through the pre-certified radio module. Both production variants are covered.

7. Technical File

A technical file demonstrating the basis for self-assessment is retained by RSensing and includes:

- System block diagram (KS-BD-001)
- BLE GATT profile definition (KS-GATT-001)
- EMC Self-Assessment Plan (KS-EMC-TP-001)
- EMC Standard Justification (KS-EMC-SJ-001)
- Circuit schematic and PCB layout
- Bill of Materials
- Raytac MDBT50Q-P1MV2 datasheet and certificates (primary module)
- Laird BL654 datasheet and certificates (secondary / alternative module)
- Firmware version record
- RoHS compliance assessment (KS-ROHS-001)
- User manual (KS-UM-001)

The technical file is held at RSensing's registered address and is available to the Office for Product Safety and Standards (OPSS) upon reasoned request.

8. Authorised Representative

Not applicable. RSensing is established in the United Kingdom.

9. Signature

Signed for and on behalf of RSensing:

Beata	01/11/2026
Signature	Date (DD/MM/YYYY)
Beata Spyt	Owner & Director, RSensing
Name (print)	Position / title

This Declaration of Conformity is issued under the sole responsibility of RSensing, based on internal self-assessment (Module A) without third-party laboratory testing. It covers all production variants of Knock Sensor v1.0 incorporating either the Raytac MDBT50Q-P1MV2 or Laird BL654 radio module.