valid until: May 22, 2029

Fraunhofer

TESTED®
DEVICE

KUKA Deutschland GmbH
LBR iisy 11 R1300 CR
Report No. KU 2303-1404

Statement of
Qualification

Single product
Electrical
Resistance

Fraunhofer IPA

Statement of Qualification · Single product

Customer

KUKA Deutschland GmbH
Zugspitzstrasse 140
86165 Augsburg
Germany

Component tested

Category: Automation Components

Subcategory: Robotics

Product name: LBR iisy 11 R1300 CR
(manufacturing date: 1/10/2024; color: white and orange; weight: 46.3 kg;
serial number: 4561014)

Electrical resistance measurements at representative points (resistance to groundable point (R_{gp}) and point-to-Point resistance (R_{p-p}))

Standards/Guidelines: IEC 61340-2-3, -5-1
The norms stated generally refer to the version valid at the time of the tests.

Test devices:
- Data capture:
  – Type: ..... Metriso 3000
  – Company: ..... Wolfgang Warmbier GmbH & Co. KG

Test environment parameters:
- Cleanroom Air Cleanliness Class (according to ISO 14644-1): ..... ISO 1
- Airflow velocity: ..... 0.45 m/s
- Airflow pattern: ..... vertical laminar flow
- Temperature: ..... 22 °C ± 0.5 °C
- Relative humidity: ..... 45 % ± 5 %

Test procedure parameters:
- Insulating support:
  – Model: ..... 4x 2 insulation cylinders with centering collar
  ..... Total insulation resistance > 10^{13} Ω
  – Material: ..... Polytetrafluorethylene
- Contact points: ..... metallic flange for mountable tools
- Groundable points: ..... on the robot base

Test result / Classification

The robot LBR iisy 11 R1300 CR was examined for its electrical resistance at representative points in accordance with IEC 61340-2-3. The resistance to groundable point (R_{gp}) values obtained from the test piece lies within the limits of the limiting value of 1 x 10^9 Ω required by IEC 61340-5-1 for ESD protective elements.

Measuring point	Operating voltage [V]	$R_{gp\ 1}$ [1)] [Ω]	$R_{gp\ 2}$ [1)] [Ω]	Compliance with limit value as per IEC 61340-5-1
Contact point 1	10	< 1 x 10^3	< 1 x 10^3	**fulfilled**
Contact point 2	10	< 1 x 10^3	< 1 x 10^3	**fulfilled**

[1)] R_{gp}: Resistance to groundable point

The measuring devices used for the qualification tests are calibrated at regular intervals; their results can be traced back to national and international standards. In cases where no national standards exist, the test procedure implemented complies with the technical regulations and norms applicable at the time of the test. The relevant documentation can be viewed on request at any time.

Detailed information and parameters of the test environment can be found in the Fraunhofer IPA test report.

Fraunhofer Institute for Manufacturing Engineering and Automation IPA

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on behalf of
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