



Fraunhofer

TESTED[®] DEVICE

KUKA Robotics Guangdong Co., Ltd.
robot series KR SCARA_KR 12
Report No. KU 2204-1316

Statement of
Qualification

Product series
Electrostatic
Charge Behavior

Statement of Qualification · Product series

Customer	KUKA Robotics Guangdong Co., Ltd. No.3, Liaoxin Road, Shuikou Residential Committee, Beijiao Town, Shunde District, Foshan City 528311, Guangdong Province China
Component tested	
Category:	Automation Components
Subcategory:	Robotics
Product name:	robot series KR SCARA_KR 12 (manufacturing date: 2/2022; batch number: 8630236; max. payload: 12 kg) tested products: <ul style="list-style-type: none"> • KR SCARA_KR 12 R850 Z340 CR (serial number: 10037906; weight: 56 kg; max. reach: 850 mm) • KR SCARA_KR 12 R650 Z340 CR (serial number: 10037902; weight: 54 kg; max. reach: 650 mm) • KR SCARA_KR 12 R650 Z400 (serial number: 10037896; weight: 52 kg; max. reach: 650 mm) • KR SCARA_KR 12 R850 Z400 (serial number: 10037900; weight: 54 kg; max. reach: 850 mm)

Measurement of electrostatic charging behavior

Standards/Guidelines:	SEMI E78-0222 The norms stated generally refer to the version valid at the time of the tests.
Test devices:	<ul style="list-style-type: none"> • Data capture:.....Influence-E-Fieldmeter, type EMF58 Eltex-Elektrostatik-GmbH
Test environment parameters:	<ul style="list-style-type: none"> • 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:	<ul style="list-style-type: none"> • Insulating base: <ul style="list-style-type: none"> – Type: 4x 2 isolation cylinders with centering collar, total resistance > 10¹³ Ω – Material:..... polytetrafluorethylen • Tool weight: no tools mounted • Motion sequence:.....typical pick & place sequence • Capacity:80 % of maximum capacity • Operating state: on

Test result / Classification

The robot series KR SCARA_KR 12 fulfills the permissible limit values of 50 V/cm (5 kV/m) for the sensitivity threshold 2010/45 nm according to SEMI E78-0222.

Electrostatic field			
Electrostatic level		Test result	
Year Node	Limit value [V/cm]	Mean value [V/cm]	Max. single value measured [V/cm]
2010 45 nm	50	5	70
Limit value:		fulfilled	

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

Department of Ultraclean Technology and Micromanufacturing

Nobelstrasse 12
70569 Stuttgart
Germany

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on behalf of 
Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA