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DEVICE

ABB Engineering Ltd.
IRB 120
Report No. AB 1103-545

DUPLICATE

Statement of
Qualification

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Statement of Qualification

Customer:

ABB Engineering (Shanghai) Ltd.
No 5, Lane 369, Chuangye Rd.
Kangqiao Town,
201319 Nanhui District, Shanghai
China

Component tested:

Category: Automation components

Subcategory: Robotics

Type: IRB 120

Random check measurements of particle emission (airborne) at representative points

Test procedure: According to VDI 2083 Part 9.1

Measuring instruments being used:

- Model LasAir II 110 manufactured by PMS with measuring channels of ≥ 0.1 µm, ≥ 0.2 µm ≥ 0.3 µm, ≥ 0.5 µm, ≥ 1.0 µm and ≥ 5.0 µm

Test parameters of the test environment:

- Cleanroom of Air Cleanliness Class ISO Class 1 (according to ISO 14644-1)
- Air flow velocity: 0.45 m/s
- Air flow guidance: vertical unidirectional air flow from ceiling to floor
- Temperature: 22 °C ± 0.5 °C (71.6 °F ± 0.9 °F)
- Relative humidity: 45 % ± 5 %

Test parameters of the test execution:

Axis	50% Capacity		100% Capacity	
	Average cycle time [s]	**Average cycle velocity** [°/s]	**Average cycle time** [s]	**Average cycle velocity** [°/s]
1	4.02	44.831	1.87	96.234
2	3.27	27.563	1.43	63.093
3	4.67	33.846	2.13	74.094
4	2.96	54.074	1.35	118.486
5	3.25	49.304	1.48	107.867
6	2.48	64.430	1.11	143.756

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Test results:
(according to ISO 14644-1)

The robot IRB 120 is suitable for use in cleanrooms fulfilling the Air Cleanliness Class 4, when operated at a capacity of 50 %.

The robot IRB 120 is suitable for use in cleanrooms fulfilling the Air Cleanliness Class 5, when operated at a capacity of 100 %.

The measuring equipment used for the qualification is regularly calibrated and is based on national and international standards. In the case where no national standards exist, the measuring procedure used corresponds with technical regulations and norms valid at the time of the measurement. The documents drawn up for this procedure are available for viewing.

The validity of this certificate applies only to the mentioned product in this particular condition for a duration of 5 years.
Further information: **www.tested-device.com**.

Fraunhofer Institute for
Manufacturing Engineering and Automation IPA

Department Ultraclean Technology
and Micromanufacturing

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Stuttgart, April 26, 2011
Place, Date

i. A.
Project manager