



Critical Environment Control

PO Box 818
Redondo Beach, CA 90277-0818
(310) 372-5011 FAX (866) 882-7457
www.ceccertify.com

Classification of Air Cleanliness

Company

Circor Aerospace Inc
2301 Wardlow Circle
Corona, CA 91720

Test Specification

ISO 14644-1 (1999-05-01)

Date of Certification

July 10, 2015

Test Area

Cleanroom #1

Next Scheduled Test

July 15, 2016

Designation Criterion for Cleanrooms in this Test Area

ISO Class 7: Considered Size: 0.5 μm (352,000 particles/ m^3)

Facility	M^3 0.5 μm	M^3 5.0 μm	Relative Humidity	Temperature	Certification	Occupancy State
Cleanroom #1	7,610	176	47.3%	70.1	ISO Class 7	Operational

This ISO Class Certification compares the results of this test to maximum concentrations delineated in Table 1, ISO 14644-1. If fewer than 10 locations were sampled a 95% UCL (Upper Confidence Limit) is applied. The 95% UCL determines compliance or failure.

Testing was performed with a Climet Instruments Model CI 500, calibrated at manufacturers recommended intervals. This instrument has been calibrated in accordance with ISO 10012-1, ANZI Z540-1 (which replaces MIL_STD-45662A) and relevant portions of ISO 14644, Federal Standards 209, ASTM F-50, and F-328. Calibration traceability to a National Measurement Standard (NMS) is established by using mono-disperse latex spheres as a calibration standard. These spheres are sized by methods traceable, by lot number, to the National Institute of Standards and Technology

Critical Environment Control certifies that the test results recorded on this document are accurate as of the time of this test. Critical Environment Control hereby certifies that the above described systems met the acceptance criterion for the Air Cleanliness Classes delineated above.

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Classification of Air Cleanliness

Company	Test Specification	Date of Certification
Circor Aerospace Inc 2301 Wardlow Circle Corona, CA 91720	ISO 14644-1 (1999-05-01)	July 10, 2015
	Flow Benches	Next Scheduled Test
		July 15, 2016

Designation Criterion for Cleanrooms in this Test Area

ISO Class 5: Considered Size: 0.5 µm (Maximun 3,520 particles/m³)

Location	Bench #	M³ 0.5 µm	M³ 5.0 µm	Velocity	Certification
Manufacturing Area	1	22	7	116	ISO Class 5
Manufacturing Area	2	1,979	0	136	ISO Class 5

This ISO Class Certification compares the results of this test to maximum concentrations delineated in Table 1, ISO 14644-1. If fewer than 10 locations were sampled a 95% UCL (Upper Confidence Limit) is applied. The 95% UCL determines compliance or failure.

Testing was performed with a Climet Instruments Model CI 500, calibrated at manufacturers recommended intervals. This instrument has been calibrated in accordance with ISO 10012-1, ANZI Z540-1 (which replaces MIL_STD-45662A) and relevant portions of ISO 14644, Federal Standards 209, ASTM F-50, and F-328. Calibration traceability to a National Measurement Standard (NMS) is established by using mono-disperse latex spheres as a calibration standard. These spheres are sized by methods traceable, by lot number, to the National Institute of Standards and Technology

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Test Standard: **ISO 14644-1 (1999-05-01)**

Company: **Circor Aerospace Inc.**

Date Tested: 07/10/2015
Next Test: 07/15/2016
Time of Test: 12:23 PM

Cleanroom #1
ISO Class 7

Occupancy State: Operational
People in Rm: 2

Test Specifications

Considered Particel Size	0.5µm	Number of Samples / Location	1
Maximum Particles / M ³	352,000	Minimum Sample Volume (Liters)	0.057
Number of Test Locations	14	Actual Sample Volume (Liters):	28

Test Data

Test Location	28 Liter 0.5µm	M ³ 0.5µm	28 Liter 5.0µm	M ³ 5.0µm	RH	Temperature F°
1	198	7,071	4	143	42.4%	73.4
2	316	11,286	13	464	41.2%	72.2
3	162	5,786	8	286	41.6%	71.4
4	218	7,786	2	71	45.2%	70.6
5	79	2,821	0	0	45.6%	69.8
6	182	6,500	3	107	44.8%	69.0
7	167	5,964	1	36	51.6%	69.0
8	145	5,179	3	107	58.4%	69.8
9	178	6,357	6	214	51.2%	69.8
10	488	17,429	15	536	47.6%	69.4
11	217	7,750	2	71	45.6%	69.0
12	147	5,250	0	0	44.4%	69.0
13	173	6,179	5	179	48.0%	69.4
14	313	11,179	7	250	54.0%	69.8
Averages	213	7,610	5	176	47.3%	70.1

Results

0.5µm Average	5.0µm Average	RH	Temperature F°	Certification	Occupancy State	Differential Pressure
7,610	176	47.3%	70.1	ISO Class 7	Operational	NA

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Test Standard: **ISO 14644-1 (1999-05-01)**

Company: **Circor Aerospace Inc.**

Date Tested: 07/10/2015

Flow Benches

Next Test:

07/15/16

Test Specifications

Considered Particel Size	0.5µm	Number of Samples / Location	1
Maximum Particles / M ³	3,520	Minimum Sample Volume (Liters)	5.68
Number of Test Locations	5	Actual Sample Volume (Liters):	28

Bench # 1

Test Location	28 Liter 0.5µm	M ³ 0.5µm	28 Liter 5.0µm	M ³ 5.0µm	Velocity
1	1	36	1	36	120
2	0	0	0	0	120
3	0	0	0	0	110
4	0	0	0	0	110
5	0	0	0	0	120
Averages	0	7	0	7	116

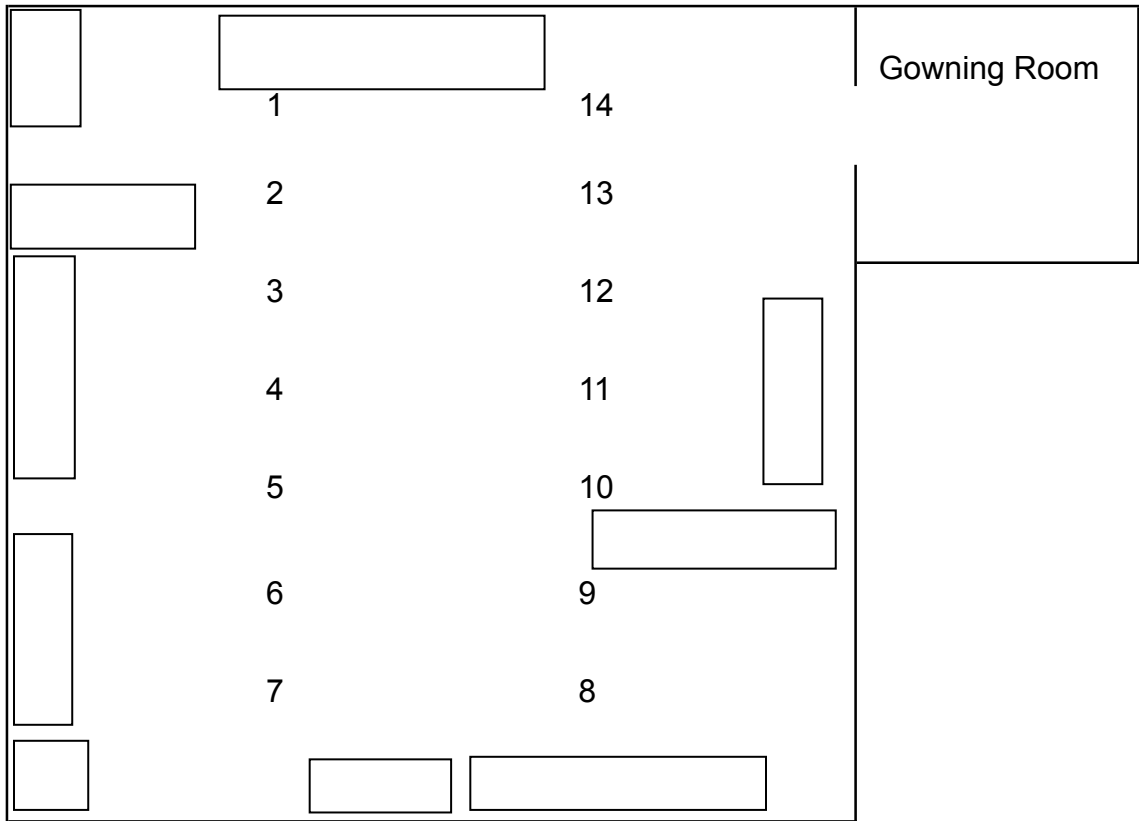
0.5µm UCL	5.0µm Average	Velocity FPM	Certification
22	7	116	ISO Class 5

Bench # 2

Test Location	28 Liter 0.5µm	M ³ 0.5µm	28 Liter 5.0µm	M ³ 5.0µm	Velocity
1	36	1,286	0	0	80
2	22	786	0	0	110
3	74	2,643	0	0	130
4	9	321	0	0	280
5	0	0	0	0	80
Averages	28	1,007	0	0	136

0.5µm UCL	5.0µm Average	Velocity FPM	Certification
1,979	0	136	ISO Class 5

Critical Environment Control Particle Count Location Map



Circor Aerospace Inc
2301 Wardlow Circle
Corona, CA 91718

Reference: CR #1