

SHANGHAI EMPEROR OF CLEANING INTERNATIONAL TRADE CO., LTD LETTER REPORT

SCOPE OF WORK

In-Duct Ozone Testing of the In-duct Air Cleaner Model ECH-KJX-Z

REPORT NUMBER

104626851CRT-002

ISSUE DATE

[REVISED DATE]

10-MAY-2021 None

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LETTER REPORT

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www.intertek.com

May 10th, 2021

Intertek Report No. 104626851CRT-002 Intertek Project No. G104626851

Mr. Wang Wei
SHANGHAI EMPEROR OF CLEANING INTERNATIONAL TRADE CO., LTD
6 Building No.138 Boxeu Road Jiading Area Phone: NA
Shanghai City Email: alkingsleyusa@gmail.com
China

Subject: In-Duct Ozone Testing of the In-duct Air Cleaner Model ECH-KJX-Z

Dear Mr. Wang Wei,

This letter report represents the results of our evaluation of the above referenced product(s) to the requirements contained in the following standards:

CSA C22.2 No. 187:20, Electrostatic air cleaners, Section 7.6

Samples provided to Intertek by SHANGHAI EMPEROR OF CLEANING INTERNATIONAL TRADE CO., LTD were sent to Blue Heaven Technologies LLC. Blue Heaven Technologies LLC employees conducted their protocol for testing to Section 7.6 of CSA C22.2 No. 187:20, Electrostatic air cleaners. The reports from Blue Heaven Technologies LLC have been appended to this letter report.

Issuance of this letter report completes the testing covered by Intertek Project No. G104626851. If there are any questions regarding the results contained in this report, or any of the other services offered by Intertek, please do not hesitate to contact your dedicated Intertek Project Manager.

Completed by: Jacob Langenbacher

Title: Engineer

Signature: Jangenhucker

Date 5/10/2021

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21-237-1A



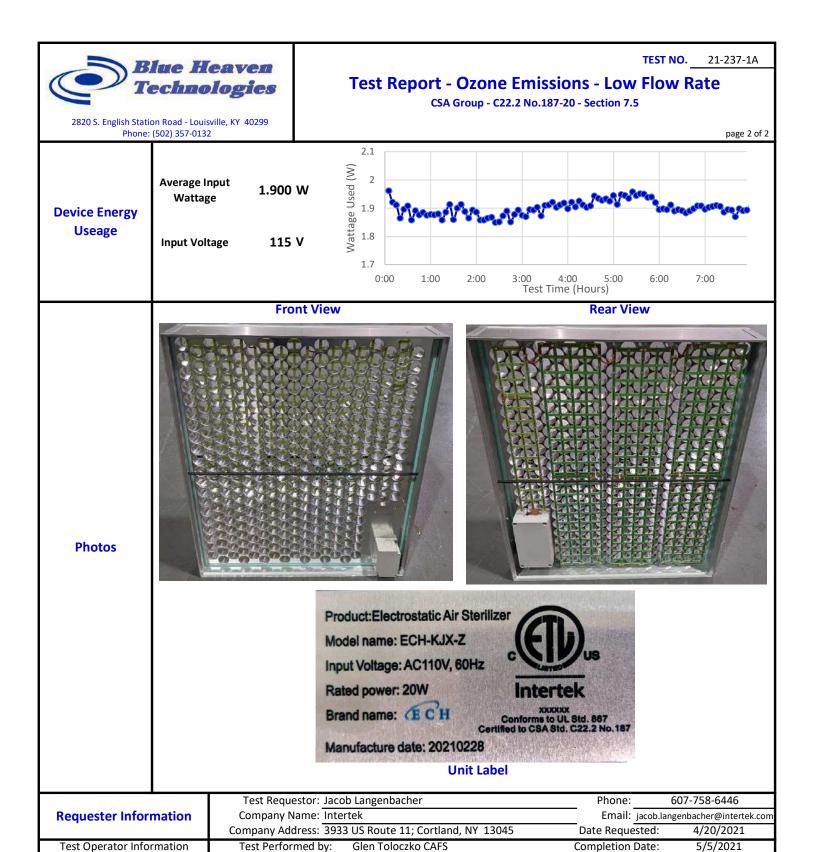
2820 S. English Station Road - Louisville, KY 40299 Phone: (502) 357-0132

Test Report - Ozone Emissions - Low Flow Rate

CSA Group - C22.2 No.187-20 - Section 7.5

Electrostatic In Duct Type Air Cleaners for Residential Use

	st Unit cription	Manufac Mode Serial Nur The u	l No.: mber:(init was tes	ions are 20" W	Rt 2-001 7 rates. Low: 37 ide X 25" Tall X 4	inside Hun in Start: 5 CFM and H	HVAC ductw 4/23/202 30 Minu ligh: 3150 CF D VAC power	ork. 1 8:16 ites M. This repared	·	4/23/2021 8:36
8-Hoi	ur Ozone	A	U	Hr Background (Concentration:	0.00073 P	PM		End Time: _ num Allowed	4/23/2021 16:43 PASS / FAIL
Emiss	ions Test esults	Average 8-Hr Downstream Concentration: Average 8 Hour Time Weighted Average (TWA) Ozone Concentration: Maximum Ozone Reading over 8-Hour Testing:					0.00167 PPM 0.000935 PPM 0.0500 PPM		500 PPM	PASS PASS
						0.001267 PPM		0.0	500 PPM	
				8-Hc	ur Ozone C	oncentra	tion			
0.06				Ozone	Emissions –	Limit (5	60 PPBV / 0.05	00 PPMV)		
0.05										
≥ 0.04										
0.03										
O.04 O.03 O.02 O.02 O.01										
0	0:00	1:00	2:00	10000000000000000000000000000000000000	Test Duration	4: 00 n (Hours)	5:00		000000000000000000000000000000000000000	7:00
					Model		Serial	Number		Range
		Upstream Ozone Analyzer: 2B Technologies Mo							0 - 0.1500 PPMV	
Test E	quipment	Downstream Ozone Analyzer: 2B Technologies Mo Temperature: Dwyer RHP-2D11			wyer RHP-2D11			7-E23W-A		0 - 0.1500 PPMV -0 - 140 °F
	rmation	Humidity: Dwyer RHP-2D11								
		Data Recorder: Yokogawa DX112-3						NA 0.1000 Walter		
		,	Watt Trans	ducer: Ohio Se	emitronics, Inc. ,	AGH-002E	2010	00694	0-	1000 Watts
Test Conditions		test p	eriod. Tes	t unit was mou	ASHRAE 52.2 Tes nted in-line with 76.15 CFM					
				mperature: 70		Averag	e Test Rel. H	umidity: 44	.46 %	
			Tes	t Requestor: Ja	acob Langenba	cher			Phone:	607-758-6446
Requ	uester Infor	mation	Com	pany Name: In	tertek					ngenbacher@intertek.com
- :			Company Address: 3933 US Route 11; Cortland, NY 13045						te Requested:	4/20/2021
Test Operator Information Test Performed by: Glen Toloczko						KO CAFS R	eviewed by:	ES Con	npletion Date:	5/5/2021





21-237-1B



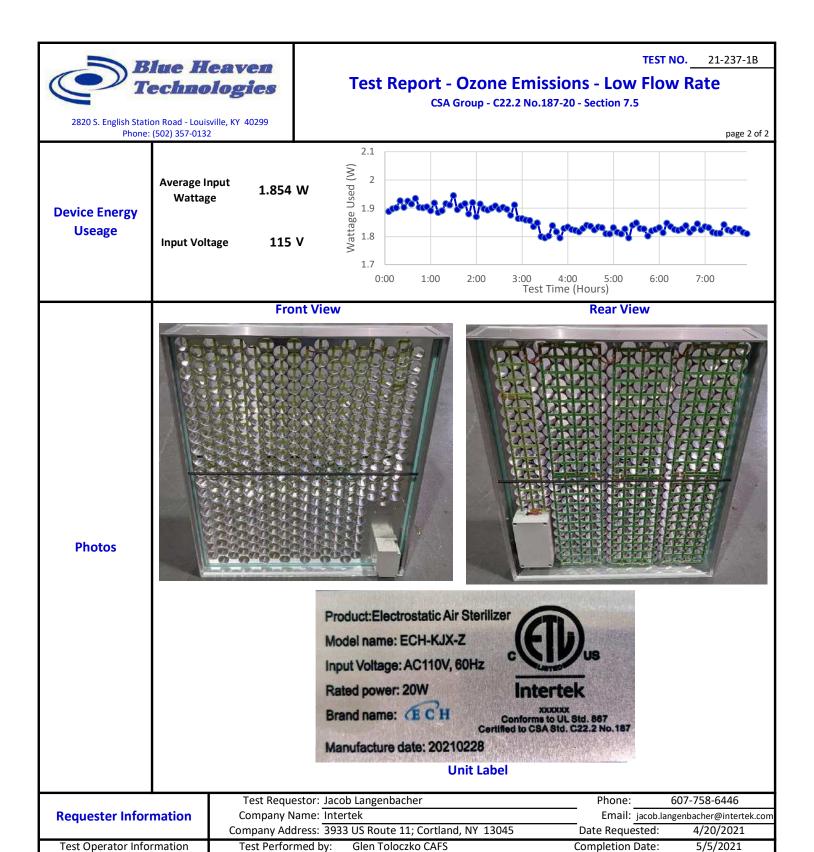
2820 S. English Station Road - Louisville, KY 40299 Phone: (502) 357-0132

Test Report - Ozone Emissions - High Flow Rate

CSA Group - C22.2 No.187-20 - Section 7.5

Electrostatic In Duct Type Air Cleaners for Residential Use

	THORE	(502) 357-0132							page 1 of 2	
		Custo	mer:	Intertek	NOTES: Unit is	an in-duct El	etrostatic Air St	erilizer mean	t for operation	
Test Unit		Manufactuer: ECH			inside					
		Mode		ECH-KJX-Z	Run in Start:	4/23/2021	l 8:16 F	Run in End:	4/23/2021 8:36	
Disc	ription	Serial Nur		103121452-001	_	30 Minu		_		
		The u	nit was tested	at two flow rates. Lo	w: 375 CFM and I	High: 3150 CF	M. This report	details perfo	mance at high flow.	
				are 20" Wide X 25"				·		
		Test	Date:	4/23/2021	Start Time:	4/23/2021	17:33	End Time:	4/24/2021 1:33	
Q Hou	ır Ozone		_	ackground Concentra			Maximum	Allowed	PASS / FAIL	
		A	erage 8-Hr Do	wnstream Concentra	on: 0.00301 PPM					
Emissions Test Results		_		Weighted Avera oncentration:	ge 0.00059	e 0.000598 PPM		PPM	PASS	
		Maximum	Ozone Readin	g over 8-Hour Testin	g: 0.00095	0 PPM	0.0500) PPM	PASS	
				8-Hour Ozo	ne Concentra	ation				
0.06				Ozone Emissions		50 PPBV / 0.05	00 PDM//)			
0.05				Ozoffe Liffissions		30 FFBV / 0.03	00 FFIVIV)			
_										
≥ 0.04										
0.03										
ne (
Ozone (PPMV) 0.03										
0.01										
0		P 00000000	N	ω	4	DOOOOOO (o	000000000	30000000000	
	0.00	1:00	2:00	3:00	4:00	5:00	6:00		7.00	
				Test Du	uration (Hours)					
				Mod	101	Sorial I	Number		Range	
		Unstream	Ozone Analyze				32DB	0 0000	- 0.1500 PPMV	
		-	Ozone Analyze				31DB		- 0.1500 PPMV	
Test Ed	uipment	Downstream	Temperatur				'-E23W-A		0 - 140 °F	
	mation	Humidity:				M96797-E23W-A				
	mation		Data Recorde	, <u> </u>	Yokogawa DX112-3-2/M1 Ohio Semitronics, Inc. AGH-002E		12VB31078 20100694		NA	
		\	Watt Transduce						.000 Watts	
				complete ASHRAE 52						
		test period. Test unit was mounted in-line with a 24" X 24" duct in the correct orintation and sealed to be								
Test Conditions		leak-free.								
			ige Test Flow R							
		Avera	ige Test Tempe	erature: 72.12 Deg F	Avera	ge Test Rel. H	umidity: 49.56	%		
			_							
_				questor: Jacob Lang	genbacher				607-758-6446	
Requ	iester Infor	mation		y Name: Intertek					genbacher@intertek.co	
				Address: 3933 US R			Requested:	4/20/2021		
Toct (Operator Info	rmation	Test Per	formed by: Glen T	oloczko CAFS I	Reviewed by:	ES Comple	etion Date:	5/5/2021	





21-237-2A



2820 S. English Station Road - Louisville, KY 40299 Phone: (502) 357-0132

Test Report - Ozone Emissions - Low Flow Rate

CSA Group - C22.2 No.187-20 - Section 7.5

Electrostatic In Duct Type Air Cleaners for Residential Use

Test Unit Discription	Manufa Mode Serial Nu <u>The u</u> The u	el No.: CRT2 unit was tested unit dimensions	Intertek ECH ECH-KJX-Z 103121452-002 at two flow rates. are 10" Wide X 10" 4/27/2021	Run Low: 211 " Tall X 4"	inside in Start: CFM and F	HVAC ductwo 4/26/2021 30 Minu High: 375 CFN 0 VAC power	ork. 14:48 Ites 1. This reporrequired	Run in End: _	4/26/2021 15:18 mance at low flow. 4/27/2021 20:20
8-Hour Ozone		Average 8-Hr Ba	ackground Concenti	- ration:	0.00070 F	PPM		um Allowed	PASS / FAIL
Emissions Test Results	Average	8 Hour Time VA) Ozone C	age —	0.00113	8 PPM			PASS	
	Maximun	n Ozone Readin	g over 8-Hour Test	ing:	0.001320	0 PPM	0.0	500 PPM	PASS
			8-Hour Oze	one Co	ncentra	ition			
0.06			Ozone Emission	ns – •	— Limit (5	50 PPBV / 0.05	00 PPMV)		
0.04 (BbW) 0.03 0.002 0.002 0.01									
0:00	1:00	2:00	ω ω Θ Test I	Duration	Hours)	5:00		0000000000	7:00
Test Equipment	Downstream	n Ozone Analyze n Ozone Analyze Temperatur Humidit Data Recorde	er: 2B Technolog er: 2B Technolog e: Dwyer RH y: Dwyer RH	gies Mode IP-2D11-L IP-2D11-L	el: 206 .CD .CD	233 233 M96797 M96797	Number 12DB 11DB 7-E23W-A 1-E23W-A 31078	0.0000	Range) - 0.1500 PPMV) - 0.1500 PPMV 10 - 140 °F - 100% RH
			er: Ohio Semitroni				00694		1000 Watts
Unit was tested in a complete ASHRAE 52.2 Test Duct. Flow Rate was maintained at 211 CFM over the 8-hour test period. Test unit was mounted on the center of a plate and installed in-line with a 24" X 24" duct in the correct orintation and sealed to be leak-free. All test air was flowed through the device. Average Test Flow Rate: 209.44 CFM Average Test Temperature: 72.51 Deg F Average Test Rel. Humidity: 52.49 %									
Requester Inf	ormation	Test Requestor: Jacob Langenba Company Name: Intertek Company Address: 3933 US Route 1							607-758-6446 ngenbacher@intertek.com 4/20/2021
Test Operator I	formation			Toloczko		Reviewed by:		pletion Date:	5/5/2021



2820 S. English Station Road - Louisville, KY 40299 Phone: (502) 357-0132 **TEST NO.** 21-237-2A

Test Report - Ozone Emissions - Low Flow Rate

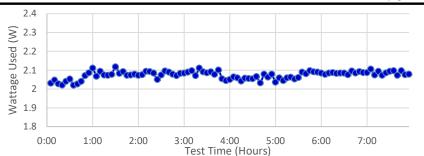
CSA Group - C22.2 No.187-20 - Section 7.5

page 2 of 2

Device Energy Useage

Average Input Wattage 2.075 W

Input Voltage 115 V



Front View



Rear View



Photos

Product: Electrostatic Air Sterilizer
Model name: ECH-KJX-Z
Input Voltage: AC110V, 60Hz
Rated power: 20W

Brand name: ECH

Intertek

XXXXXXX

Conforms to UL Std. 867

ortified to CSA Std. C22.2 No. 187

Manufacture date: 20210228

Unit Label

	Test Requestor: Jacob Langenbacher	Phone: 607-758-6446
Requester Information	Company Name: Intertek	Email: jacob.langenbacher@intertek.com
-	Company Address: 3933 US Route 11; Cortland, NY 13045	Date Requested: 4/20/2021
Test Operator Information	Test Performed by: Glen Toloczko CAFS	Completion Date: 5/5/2021



21-237-2B



2820 S. English Station Road - Louisville, KY 40299 Phone: (502) 357-0132

Test Report - Ozone Emissions - High Flow Rate

CSA Group - C22.2 No.187-20 - Section 7.5

Electrostatic In Duct Type Air Cleaners for Residential Use

Test Unit Discription	Manufad Mode Serial Nur <u>The u</u> The u	tuer: I No.: ECI nber: CRT2103 nit was tested at t nit dimensions are	ECH H-KJX-Z Ru 121452-002 wo flow rates. Low: 21 10" Wide X 10" Tall X 4	inside HVAC ductors in in Start: 4/26/202 30 Min 1 CFM and High: 375 Cl 1" Deep. 110 VAC power	21 14:48 Run in End nutes FM. This report details per er required	1: 4/26/2021 15:18 formance at high flow.	
8-Hour Ozone Emissions Test Results	Average	Average 8-Hr Backg verage 8-Hr Downs	round Concentration: _ tream Concentration: _ eighted Average	0.00077 PPM 0.00191 PPM 0.001139 PPM	Maximum Allowed 0.0500 PPM		
	Maximum	Ozone Reading o	ver 8-Hour Testing:	0.001370 PPM	0.0500 PPM	PASS	
			8-Hour Ozone C	oncentration			
0.06 0.05 (0.04 0.03 0.02 0.01 0 0:00 Test Equipment Information	Downstream	Ozone Analyzer: Ozone Analyzer: Temperature: Humidity: Data Recorder:	Test Duration Model 2B Technologies Mod 2B Technologies Mod Dwyer RHP-2D11- Dwyer RHP-2D11- Yokogawa DX112-3 Ohio Semitronics, Inc. A	Seria del: 205 2: del: 206 2: -LCD M9679 -LCD M9679 -2/M1 12V	6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Range 000 - 0.1500 PPMV 000 - 0.1500 PPMV -40 - 140 °F 0 - 100% RH NA 0-1000 Watts	
Unit was tested in a complete ASHRAE 52.2 Test Duct. Flow Rate was maintained at 375 CFM over the 8-hour test period. Test unit was mounted on the center of a plate and installed in-line with a 24" X 24" duct in the correct orintation and sealed to be leak-free. All test air was flowed through the device. Average Test Flow Rate: 372.52 CFM Average Test Temperature: 73.50 Deg F Average Test Rel. Humidity: 41.32 %							
Requester Info	rmation	Company Na	stor: Jacob Langenba ame: Intertek ress: 3933 US Route			607-758-6446 b.langenbacher@intertek.com d: 4/20/2021	
Test Operator Inf	ormation	Test Perforn				· ·	



2820 S. English Station Road - Louisville, KY 40299 Phone: (502) 357-0132 **TEST NO.** 21-237-2B

Test Report - Ozone Emissions - Low Flow Rate

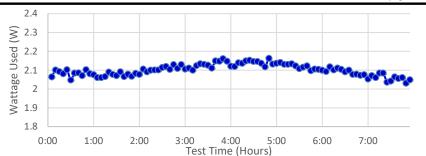
CSA Group - C22.2 No.187-20 - Section 7.5

page 2 of 2

Device Energy Useage

Average Input Wattage 2.101 W

Input Voltage 115 V



Front View

Rear View



Photos

Product: Electrostatic Air Sterilizer

Model name: ECH-KJX-Z

Input Voltage: AC110V, 60Hz

Rated power: 20W

Brand name: ECH

Manufacture date: 20210228

Unit Label

-	Test Requestor: Jacob Langenbacher	Phone:	607-758-6446
Requester Information	Company Name: Intertek	Email: jacob.	langenbacher@intertek.com
-	Company Address: 3933 US Route 11; Cortland, NY 13045	Date Requested:	4/20/2021
Test Operator Information	Test Performed by: Glen Toloczko CAFS	Completion Date:	5/5/2021