

Qierling (Beijing) Health Technology Co., Ltd.

TEST REPORT



SCOPE OF WORK

EMC TESTING—SEE PAGE 2

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TEST REPORT

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Manufacturing Site : Healthlead Corproation Limited
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Intertek Report No: 201225119GZU-006

Test standards

EN IEC 62311:2020

Sample Description

Product : Air Purifiering Disinfector
Model No. : DS-X400W, DS-P400,
DS-S800, DS-X1000W, DS-X1000N-A
Electrical Rating : 100V-240V, 50Hz, 38W for model DS-X400W, DS-P400
220V-240V, 50Hz, 90W for model DS-S800
220V-240V, 50Hz, 120W for model DS-X1000W, DS-X1000N-A
Serial No. : Not Labeled
Date Received : 25 December 2020
Date Test Conducted : 06 January 2021-28 January 2021

Prepared and Checked By



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1.0 TEST RESULT SUMMARY

RF Exposure Part for Tx & Rx				
Evaluation	Evaluation Requirement	Evaluation Method	Class / Severity	Result
RF Exposure	EN IEC 62311	EN IEC 62311	61 V/m	PASS

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2.0 Results Conclusion (with Justification)

RE: Protection of the Health Evaluation Pursuant to Radio Equipment Directive 2014/53/EU Performed on the Air Purifying Disinfector, Model: DS-X400W,DS-P400,DS-S800,DS-X1000W,DS-X1000N-A.

We tested the Air Purifying Disinfector, Model: DS-X1000W, to determine if it was in compliance with the relevant standards as marked on the Test Results Summary. We found that the unit met the requirement of EN IEC 62311 standards when tested as received. The worst case's test data was presented in this test report.

Models difference:

Model	NFC	WIFI module	Motor /ratings	Ratings
DS-X400W	----	With	DNQ12M84R25F/ DC24 V	100V-240V, 50Hz, 38W
DS-P400	----	With	DNQ12M84R25F/ DC24 V	100V-240V, 50Hz, 38W
DS-S800	With	With	ZWF-75L/ DC310V; 75W; 0,34A	220V-240V, 50Hz, 90W
DS-X1000W	With	With	SIC-58CS-F185-1/ DC310V; 85W, 0,34A;	220V-240V, 50Hz, 120W
DS-X1000N-A	With	----	SIC-58CS-F185-1/ DC310V; 85W, 0,34A;	220V-240V, 50Hz, 120W
Remark: DS-X400W and DS-P400 are identical except model names.				

The production units are required to conform to the initial sample as received when the units are placed on the market.

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3.0 LABORATORY MEASUREMENTS

Configuration Information

WIFI

Operating Frequency	2412 MHz to 2472 MHz for 802.11b/g/n(HT20) 2422 MHz to 2462 MHz for 802.11b/g/n(HT40)
Type of Modulation:	802.11b: DSSS(CCK/QPSK/BPSK) 802.11g: OFDM(BPSK/QPSK/16QAM/64QAM) 802.11n: OFDM (BPSK/QPSK/16QAM/64QAM)
Transmit Data Rate:	802.11b :1/2/5.5/11 Mbps 802.11g :6/9/12/18/24/36/48/54 Mbps 802.11n(HT20): 6.5/13/19.5/26/39/52/58.5/65 Mbps 802.11n(HT40):13.5/27/40.5/54/81/108/121.5/135Mbps
Number of Channels	13 Channels for 802.11b/g/n(HT20) 11 Channels for 802.11n(HT40)
Channel Separation:	5 MHz
Antenna Type	PCB_Onboard
Antenna gain:	1.5 dBi
Function:	Air Purifying Disinfector with 2.4 GHz WIFI
Power Supply:	DS-X400W, DS-P400:100-240V/50Hz DS-S800, DS-X1000W:200V-240V/50Hz
Power cord:	1.1 m x 3 wires unscreened AC supply cable
Support Equipment:	PC: DELL, Model: WM3A2200BG Test Software: CSR BlueSuite3 Mobile phone: Lenovo K860

EUT channels and frequencies list:

Test frequencies are lowest channel 1: 2412 MHz, middle channel 7: 2442 MHz and highest channel 13: 2472 MHz for 802.11b/g/n(HT20)

The lowest channel 3: 2422 MHz, middle channel 7: 2442 MHz and the highest channel 11: 2462 MHz for 802.11n40.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	12	2467
6	2437	13	2472

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7	2442		/
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Notes:

The measurements had been made in the operating mode producing the largest emission in the frequency band being investigated consistent with normal applications.
An attempt had been made to maximize the emission by varying the configuration of the EUT.

NFC

Operating Frequency: 13.56MHz
Number of Channels 1
Type of Modulation: ASK
Antenna Type: Coil
Power Supply: AC 230V 50 Hz

Notes:

1. The measurements had been made in the operating mode producing the largest emission in the frequency band being investigated consistent with normal applications. An attempt had been made to maximize the emission by varying the configuration of the EUT.
2. Test Location:
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
All tests were performed at:
Room102/104, No 203, KeZhu Road, Science City, GETDD Guangzhou, China

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4.0 Test Specification in EN IEC 62311

4.1 General Description of Applied Standard

EN IEC 62311 Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz–300 GHz) is to demonstrate the compliance of apparatus with the basic restrictions or reference levels on exposure of the general public related to electric, magnetic, electromagnetic fields as well as induced and contact current.

4.2 RF Exposure Evaluation

4.2.1 Limit:

According to EN IEC 62311, the criteria listed in the below table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified table 2 of Council Recommendation 1999/519/EC.

Reference levels for electric, magnetic and electromagnetic fields
(0 Hz to 300 GHz, unperturbed rms values)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	$4\,000/f$	$5\,000/f$	—
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	—
0,8-3 kHz	$250/f$	5	6,25	—
3-150 kHz	87	5	6,25	—
0,15-1 MHz	87	$0,73/f$	$0,92/f$	—
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	—
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Notes:

1. f as indicated in the frequency range column.

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4.2.2 Test method

The antenna of the product, under normal use condition is at least 20cm away from the body of the user. Warning statement at the user for keeping 20cm separation distance and the prohibition of operating to a person has been printed on the user manual. So, this product under normal use is located on electromagnetic far field between the human body.

Far Field Calculation Formula

$$E = \frac{\sqrt{30PG(\theta, \phi)}}{r}$$

G = antenna gain relative to an isotropic antenna
 θ, ϕ = elevation and azimuth angles to point of investigation
 r = distance from observation point to the antenna

4.2.3 Test Data and Test result

Test mode: Test these three frequencies with DSSS, OFDM modulation type respectively:

Enter test mode for the product. Test in lowest Channel 2412 MHz, middle Channel 2442 MHz and highest Channel 2472 MHz, keep in continuously transmitting status.

Distance to human body (r): 20 cm

1. Test in DSSS modulation (802.11b)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	E Field Strength Limit (V/m)	Result
1	2412	16.7	46.77	7.04	61	Pass
7	2442	16.0	39.81	6.49	61	Pass
13	2472	16.8	47.86	7.12	61	Pass

2. Test in OFDM modulation (802.11g)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	E Field Strength Limit (V/m)	Result
1	2412	12.1	16.22	4.15	61	Pass
7	2442	12.0	15.85	4.10	61	Pass
13	2472	12.2	16.60	4.19	61	Pass

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3. Test in DSSS modulation (802.11n)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	E Field Strength Limit (V/m)	Result
1	2412	12.1	16.22	4.15	61	Pass
7	2442	12.4	17.38	4.29	61	Pass
13	2472	12.2	16.60	4.19	61	Pass

4. Test in DSSS modulation (802.11n40)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	E Field Strength Limit (V/m)	Result
3	2422	12.1	16.22	4.15	61	Pass
7	2442	12.1	16.22	4.15	61	Pass
11	2462	12.2	16.60	4.19	61	Pass

5. Test in ASK modulation (NFC)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	E Field Strength (V/m)	E Field Strength Limit (V/m)	Result
--	13.56	-28.9	1.29	0.98	61	Pass

5.0 Appendix I – Photos of EUT

Please refer to 201225119GZU-005 test report for more details.

*****End of the test report*****