

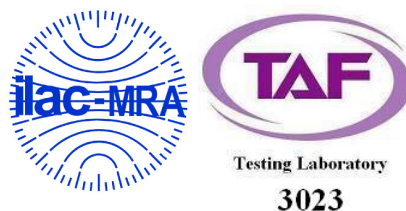
RF Exposure Evaluation Report

Product Name : Delta 3D Printer
Model No. : Atom 3.5
FCC ID : 2AWWXATOM3-5

Applicant : LAYER ONE CO., LTD.

Address : No. 84, Sec. 2, Minsheng E. Rd., Zhongshan Dist., Taipei City
104, Taiwan (R.O.C.)

Date of Receipt : Jul. 08, 2020
Date of Declaration : Jan. 27, 2021
Report No. : 2070288R-E3082100013
Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Issued Date: Jan. 27, 2021

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Product Name	Delta 3D Printer	
Applicant	LAYER ONE CO., LTD.	
Address	No. 84, Sec. 2, Minsheng E. Rd., Zhongshan Dist., Taipei City 104, Taiwan (R.O.C.)	
Manufacturer	LAYER ONE CO., LTD.	
Model No.	Atom 3.5	
FCC ID.	2AWWXATOM3-5	
Trade Name	ATOM	
Applicable Standard	KDB 447498 D01 v06	☒ Minimum test separation distance ≥ 20 cm ☐ For low power devices
Test Result	Complied	

Documented By :



(Senior Adm. Specialist / Joanne Lin)

Tested By :



(Senior Engineer / Wen Lee)

Approved By :



(Director / Vincent Lin)

Revision History

Report No.	Version	Description	Issued Date
2070288R-E3082100013	V1.0	Initial issue of report.	Jan. 27, 2021

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Delta 3D Printer
Trade Name	ATOM
Model No.	Atom 3.5
FCC ID.	2AWWXATOM3-5
Frequency Range	802.11b/g/n-20: 2412-2462MHz
Number of Channels	802.11b/g/n-20: 11CH
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 72.2Mbps
Channel separation	802.11b/g/n: 5 MHz
Type of Modulation	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	Dipole Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Aosiya	GX001Z.100006.Z01	Dipole Antenna	2dBi for 2.4 GHz

2. RF Exposure Evaluation

2.1. Standard Applicable

According to KDB 447498 D01 (7.1), A minimum test separation distance ≥ 20 cm is required between the antenna and radiating structures of the device and nearby persons to apply mobile device exposure limits.

2.2. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

2.3. Test Result of RF Exposure Evaluation

Product : Delta 3D Printer
Test Item : RF Exposure Evaluation

WLAN 2.4G Peak Gain: 2dBi

Band	Frequency (MHz)	Conducted maximum Peak Power (dBm)	Worst Case Duty Cycle (%)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Pass/Fail
2.4G	2412	21.57	100	143.549	0.0453	1	Pass

Note: The Maximum conducted output power is refer to report No.: 2070288R-E3032110113 from the DEKRA.