

FCC 47 CFR PART 15 Subpart B

TEST REPORT

Equipment	Motorized Elliptical Trainer			
Trademark	N/A			
FCC ID:	2A5GJ-TD001S-18			
Model No.	D001S-18, TD001S-19, TD001S-20, TD00S-21, TD001S-22, D001S-23, TD001S-24, TD001S-25			
Report No.	TB220307032RF			
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Manufacturer	Zhejiang Todo Hardware Manufacture Co .,Ltd.			
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ate of Receipt	Mar. 1, 2022			
Date of Test(s)	Mar. 1, 2022 ~ Mar. 7, 2022			
Date of Issue	Mar. 7, 2022			

Test Standard(s) CFR47, FCC Part 15 Subpart B, ANSI C63.4: 2014

In the configuration tested, the EUT complied with the standards specified above.

Compiled by:

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Note: The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report shall not be reproduced except in full, without prior written approval of CTB. This document may be altered or revised by CTB, personnel only, and shall be noted in the revision of the document.



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		Revision History		
Rev.	Issue Date	Revisions	Effect Page	Revised By
0	Mar. 7, 2022	Initial Issue	All Page	Rita Xiao
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1. GENERAL INFORMATION

1.1. Description of EUT

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Equipment	Motorized Elliptical Trainer
Trade Mark	N/A
Model Name	TD001S-18
Serial No.	TD001S-19, TD001S-20, TD00S-21, TD001S-22, TD001S-23, TD001S-24, TD001S-25
Model Difference	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: TD001S-18
Operating Frequency	AC120V/60Hz
Max Operating frequency	24MHz
I/O Port	N/A
EUT Power Rating	AC 120V/60Hz
Configuration	Table-top I Floor-standing
Accessory Device	Adapter
Cable Supplied	N/A C´ C´ C´ C´ C´ C´ C´ C´ C´

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1. Other Accessory Device List and Details

	Descri	Description		Manufacturer		М	odel				Note	е		
			\$	-	-	4	-	-		4	-	-	-	
5	-	-	5	~~~~	~~ ~ ~	-	1	~~~	2		5	A.	1	~~~

External I/O Cable

Cable Description	Shielded Type	Ferrite Core	Length(m)	Note
	Shielded Non-shielded	□Yes □No	<u></u>	S 5
\$ \$ \$	\$ \$ \$ \$ \$ \$		\$	

 The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



2. TEST SUMMARY

Test procedures according to the technical standards:

FCC Rules	Test Item	Test Result
§15.107	Conducted Emission	PASS
§15.109	Radiated Emission	PASS

Remark: N/A is abbreviation for Not Applicable.

The test was carried out in all the test modes, only the worst data are list in report.

3. FACILITIES

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3.1. Test Facility

Shenzhen CTB Testing Technology Co., Ltd. Floor 1&2, Building A, No. 26 of Xinhe Road, Xinqiao Street, Baoan District, Shenzhen China CNAS Registration Number is L4595. A2LA Certificate Number is 5599.01.

3.2. Test Instruments

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other required standards.

Table list of the test and measurement equipment

			Conc	lucted Emissior	n Measuremer	nt	
No.	Equ	uipment	Manufacturer	Model No.	Serial No.	Calibrated date	Calibrated until
1		AMN	ROHDE&SCHWARZ	ESH3-Z5	831551852	2021.09.27	2022.08.05
2	Puls	se limiter	ROHDE&SCHWARZ	ESH3Z2	357881052	2021.09.27	2022.08.05
3	EMI TES	T RECEIVER	ROHDE&SCHWARZ	ESCS30	834115/006	2021.09.27	2022.08.05
4	Coa	kial cable	ZDECL	Z302S	18091904	2021.09.27	2022.08.05
5	\$ \$	AAN	Schwarzbeck	NTFM8158	6114	2021.09.27	2022.08.05
6	EŽ	Z-EMC	Frad	EMC-con3A1.1	P	C P C	

			Radi	ated Emission	Measurement		
No.	Ec	quipment	Manufacturer	Model No.	Serial No.	Calibrated date	Calibrated until
10	Double Rie Hor	dged Broadband n Antenna	Schwarzbeck	BBHA 9120D	1911	2021.09.27	2022.08.07
2	TRILO	G Broadband Intenna	Schwarzbeck	VULB 9168	869	2021.09.27	2022.08.07
3		mplifier	Agilent	8449B	3008A01838	2021.09.27	2022.08.05
4	A کی	mplifier	C HP C (8447E	2945A02747	2021.09.27	2022.08.05
5	EMI TES	ST RECEIVER	ROHDE&SCHWARZ	ESPI7	100362	2021.09.27	2022.08.05
6	Coa	axial cable	ETS	RFC-SNS-100 -NMS-80 NI		2021.09.27	2022.08.05
7	Coa	axial cable	ETS	RFC-SNS-100 -NMS-20 NI	ф ⁷ ф	2021.09.27	2022.08.05
8	Coa	axial cable	ETS	RFC-SNS-100 -SMS-20 NI		2021.09.27	2022.08.05
9	Coa	axial cable	ETS	RFC-NNS-100 -NMS-300 NI		2021.09.27	2022.08.05
10	C E	Z-EMC	Frad	EMC-con3A1. 1			ີ້ເງັດ



4. Measurement uncertainty

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4 and ANSI C63.4.

Test	Parameters	Expanded Uncertainty (U _{Lab})	Expanded Uncertainty (U _{Cispr})
Conducted Emission	Level Accuracy: 150kHz to 30MHz	±1.22 dB	±3.6 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±3.67 dB	±5.2 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.79 dB	N/A

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.1. Operating condition of EUT

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively

Pretest Mode	Description
Mode	C C Charging C C C
Mode	Running

For Conducted Test					
Final Test Mode	Description				
Mode	Charging				

	For Radiated Test
Final Test Mode	Description
Mode	Charging
Mode	

Charging, USB and HDMI three modes were tested at AC 120V/60Hz and AC230V/50Hz, only the worst result of Charging test mode for AC 120V/60Hz was reported.

4.2. Test conditions

Temperature: 15-35°C Relative Humidity: 30-60 % Atmospheric pressure: 800hPa-1060hPa



5. Conducted Emission

5.1.Limit

\boxtimes Except for Class A devices:

	Conducted limit (dBµV)			
Frequency of emission (MHZ)	Quasi-peak	Average		
0.15-0.5	66 to 56*	56 to 46*		
0.5-5	56	46		
5-30	60 60	50 50		

*Decreases with the logarithm of the frequency.

For Class A devices:

Frequency of optimizion (MHz)	Conducted limit (dBµV)			
Frequency of emission (MHZ)	Quasi-peak	Average		
0.15-0.5	79	66		
0.5-30	73	60		

5.2. Test setup



The setup of EUT is according with ANSI C63.4 measurement procedure. Specification used with FCC Part 15 limits.

5.3. EMI Test Receiver Setup

Frequency Range	9kHz-30MHz
Resolution Bandwidth	200Hz (9kHz-150kHz) 9kHz (150kHz-30MHz)



5.4. Test procedure

Measurement was performed in shielded room, and instruments used were followed clause 4 of ANSI C63.4.

Detailed test procedure was following clause 7 of ANSI C63.4.

Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

5.5. Test results

PASS

Please refer to the following page.



Polarization: L



5	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin	
ŝ			MHz	dBuV	dB	dBuV	dBuV	dB	Detector
-	1	*	0.1940	49.39	10.69	60.08	63.86	-3.78	QP
ć	2		0.1940	34.34	10.69	45.03	53.86	-8.83	AVG
1	3		0.6380	41.27	10.55	51.82	56.00	-4.18	QP
ć	4		0.6380	30.91	10.55	41.46	46.00	-4.54	AVG
-	5		2.2460	41.55	10.63	52.18	56.00	-3.82	QP
¢.	6		2.2460	29.81	10.63	40.44	46.00	-5.56	AVG
-	7		6.6939	44.32	10.71	55.03	60.00	-4.97	QP
ć	8		6.6939	27.53	10.71	38.24	50.00	-11.76	AVG
1	9		12.3539	36.70	10.86	47.56	60.00	-12.44	QP
ć	10		12.3539	22.43	10.86	33.29	50.00	-16.71	AVG
-	11		29.7820	42.61	11.03	53.64	60.00	-6.36	QP
ć	12		29.7820	32.61	11.03	43.64	50.00	-6.36	AVG
-									



Polarization: N



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Ī	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin	
			MHz	dBuV	dB	dBuV	dBuV	dB	Detector
	1		0.1940	48.90	10.69	59.59	63.86	-4.27	QP
	2		0.1940	33.72	10.69	44.41	53.86	-9.45	AVG
Ī	3	*	0.6460	41.29	10.55	51.84	56.00	-4.16	QP
	4		0.6460	30.56	10.55	41.11	46.00	-4.89	AVG
	5		2.1900	41.00	10.63	51.63	56.00	-4.37	QP
	6		2.1900	25.07	10.63	35.70	46.00	-10.30	AVG
	7		7.3258	35.90	10.73	46.63	60.00	-13.37	QP
	8		7.3258	23.41	10.73	34.14	50.00	-15.86	AVG
	9		19.3857	34.13	10.98	45.11	60.00	-14.89	QP
	10		19.3857	28.10	10.98	39.08	50.00	-10.92	AVG
	11		29.7740	42.61	11.03	53.64	60.00	-6.36	QP
	12		29.7740	32.02	11.03	43.05	50.00	-6.95	AVG
-									



6. Radiated emissions

6.1.Limit

Except for Class A devices (at 3m):

Frequency of emission	Field strength (microvolts/meter)				
(MHz)	(microvolts/meter)	(dBµV/m)			
0 0 30-88 0	G G 100 G G	G G 40 G G			
88-216	150	43.5			
216-960	200 0 0	6 6 6 0			
Above 960	500	54			

For Class A devices (at 10m):

Frequency of emission	Field strength (microvolts/meter)			
(MHz)	(microvolts/meter)	(dBµV/m)		
30-88	90	39		
88-216	150	43.5		
216-960	210	46.4		
Above 960	300	49.5		

6.2. Test setup

Radiated Emission Test Set-Up Frequency Below 1 GHz



Below 1GHz

Radiated Emission Test Set-Up Frequency Above 1GHz



Above 1GHz

The radiated tests were performed in semi-anechoic(3m) test site, using the setup accordance with the ANSI C63.4:2014.



6.3. EMI Test Receiver Setup and Spectrum Analyzer Setup

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz-1000MHz	100kHz	300kHz	120kHz	QP
	1MHz	3MHz	T de de de	PK
Above IGHZ	1MHz	10Hz		AVG

6.4. Test procedure

The measurement was performed in a 3m semi-anechoic chamber, and instruments used were f ollowed clause 4 of ANSI C63.4.

Detailed test procedure was following clause 8 of ANSI C63.4.

Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB /10 decades.

6.5. Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

6.6. Test results

PASS

Please refer to the following page.



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Below 1 G

Polarization: H



No.	Mk.	Freq.	Reading Level	C orrect Factor	Measure - ment	Limit	Over	
		MHz	dBu∨	dB	dBu∿/m	dB/m	dB	Detector
1	*	39.0245	40.07	-5.51	34.56	40.00	-5.44	QP
2		72.0843	40.45	-8.31	32.14	40.00	-7.86	QP
3	1	19.8556	36.57	-6.91	29.66	43.50	-13.84	QP
4	2	217.5443	34.77	-6.88	27.89	43.50	-15.61	QP
5	4	01.8385	41.36	-1.64	39.72	46.00	-6.28	QP
6	9	948.761.0	30.09	5.91	36.00	46.00	-10.00	QP

Note: Result=Reading+Factor Over Limit=Result-Limit



Polarization: V



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBu∨	dB	dBu∿∕/m	dB/m	dB	Detector
1 !	37.3509	41 .52	-5.91	35.61	40.00	-4.39	QP
2 !	72.0841	44.21	-8.31	35.90	40.00	-4.10	QP
3 !	97.9700	46.85	-8.86	37.99	43.50	-5.51	QP
4 * ~	126.3285	46.63	-6.42	40.21	43.50	-3.29	QP
5 3	259.2337	42.36	-5.61	36.75	46.00	-9.25	QP
6 4	401 .8383	40.19	-1.64	38.55	46.00	-7.45	QP

Note: Result=Reading+Factor Over Limit=Result-Limit



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7. Photographs of test setup





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8. Photographs of EUT





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End of report