RADIO TEST REPORT

Report No: STS2109158H01

Issued for

Shenzhen Freesun Technology Co.,Ltd

3rd Floor, Yingdefeng Building, Hourui, Aimin Road,
Hangcheng Street, Bao an, Shenzhen, China

Product Name:	Ditto Projector
Brand Name:	Joann
Model Name:	DT01
Series Model:	N/A
FCC ID:	2AYJ8-DITTO
Test Standard:	FCC 47CFR §2.1091

Shenzhen STS Test Services Co., Ltd.
A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ,
Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China
TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail:sts@stsapp.com

Test Report Certification

Applicant's Name	:	Shenzhen Freesun Technology Co.,Ltd
Address	:	3rd Floor, Yingdefeng Building, Hourui, Aimin Road, Hangcheng Street, Bao an, Shenzhen, China
Manufacturer's Name	:	Shenzhen Freesun Technology Co.,Ltd
Address	:	3rd Floor, Yingdefeng Building, Hourui, Aimin Road, Hangcheng Street, Bao an, Shenzhen, China

Product Description

Product Name	:	Ditto Projector
Brand Name	:	Joann
Model Name	:	DT01
Series Model	:	N/A
Standards	:	FCC 47CFR §2.1091

Date of Test	:	
Date of receipt of test item	:	22 Sept. 2021
Date (s) of performance of tests	:	22 Sept. 2021 ~ 13 Oct. 2021
Date of Issue	:	13 Oct. 2021
Test Result	:	**Pass**

Testing Engineer : Chris Chen

(Chris Chen)

Technical Manager : Sean She

(Sean she)

Authorized Signatory : Vita Li

(Vita Li)

TABLE OF CONTENTS

Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	13 Oct. 2021	STS2109158H01	ALL	Initial Issue

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Ditto Projector
Brand Name	Joann
Model Name	DT01
Series Model	N/A
Model Difference	N/A
Product Description	The EUT is Ditto Projector Operation Frequency: BT/BLE: 2402~2480MHz 2.4G WLAN: 802.11b/g/n 20: 2412~2462 MHz 5G WLAN: 802.11a/n/ac(VHT20): 5180~5240MHz 802.11n/ac(VHT40): 5190~5230MHz 802.11ac(VHT80): 5210MHz Modulation Type: BT/BLE: GFSK(1Mbps), π/4-DQPSK(2Mbps), 8DPSK(3Mbps) 2.4G WLAN: 802.11b(DSSS):CCK,DQPSK,DBPSK 802.11g(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM 5G WLAN: 802.11a(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM Antenna gain: 3dBi Antenna Designation: PIFA Antenna
Adapter	Input: 100-240V~50/60Hz 0.7A Output: DC 5.0V 3.0A 15.0W
Hardware version number	5071B
Software version number	20210916

1.2 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD
Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

2. FCC 47CFR §2.1091 REQUIREMENT

2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.
Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

2.2 LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the 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)
Limits for Occupational / controlled Exposures			
300 - 1500	--	--	F/300
1500 – 100000	--	--	5.0
Limits for General population / Uncontrolled Exposure			
300 - 1500	--	--	F/1500
1500 – 100000	--	--	1.0

F= Frequency in MHz

Friss Formula

Friss Transmission Formula: $Pd = (Pout * G) / (4*pi*r^2)$

Where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.

2.3 EUT OPERATION CONDITION

EUT was enabled to transmit and receive at lowest, middle and highest channels.

2.4 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance from the antenna should be included in the User manual. So, this device is classified as Mobile device.

2.5 TEST RESULT

Turn up

Mode	Detector	Turn up Power
BT	AV	6±1dBm
BLE	AV	1±1dBm
2.4G WIFI	AV	17±1dBm
5.2G WIFI	AV	17±1dBm

ANT Gain (G)

2402-2483.5MHz: 3dBi (gain of antenna in linear scale=1.995)

Protocol	**Max Turn up Power (dBm)**	**Max Turn up Power (mW)**	**ANT Gain(gain of antenna in linear scale)**	**Power Density (mW/cm²)**	**Limit (mW/cm²)**	**Result**
BT	7	5.012	1.995	0.0020	1	Pass
BLE	2	1.585	1.995	0.0006	1	Pass
2.4G WIFI	18	63.096	1.995	0.0251	1	Pass
5.2G WIFI	18	63.096	1.995	0.0251	1	Pass

Note: The Bluetooth and WLAN can’t simultaneous transmission at the same time.

※※※※※END OF THE REPORT※※※※※