

RF Exposure Report

FCC ID:2BLY8-A21-13W

Report No. : SSP24100098-3E

Applicant : Zheng Zhou Wan Nai De Shang Mao You Xian Gong Si Co., LTD

Product Name : SMART LED BULB

Model Name : A21-13W

Test Standard : FCC CFR 47 PART 1.1307(b)

Date of Issue : 2024-11-01



Shenzhen CCUT Quality Technology Co., Ltd.

1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen,
Guangdong, China; (Tel.:+86-755-23406590 website: www.ccuttest.com)

This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen CCUT Quality Technology Co., Ltd.

Test Report Basic Information

Applicant:	Zheng Zhou Wan Nai De Shang Mao You Xian Gong Si Co., LTD liang cang lu 1 hao yuan 1 hao lou 1 dan yuan 2 hao hui ji qu, zheng zhou shi Address of Applicant.....:	he nan sheng, China
Manufacturer:	Zheng Zhou Wan Nai De Shang Mao You Xian Gong Si Co., LTD liang cang lu 1 hao yuan 1 hao lou 1 dan yuan 2 hao hui ji qu, zheng zhou shi Address of Manufacturer.....:	he nan sheng, China
Product Name:	SMART LED BULB	
Brand Name:	Franqual	
Main Model:	A21-13W	
Series Models:	BR30-15W, GU10-5W	
Test Standard:	FCC CFR 47 PART 1.1307(b) KDB 447498 D01 v06	
Date of Test	2024-10-12 to 2024-11-01	
Test Result:	PASS	
Tested By	<u>Coke Huang</u> (Coke Huang)	
Reviewed By:	<u>Lieber Ouyang</u> (Lieber Ouyang)	
Authorized Signatory:	<u>Lahm Peng</u> (Lahm Peng)	
Note : This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen CCUT Quality Technology Co., Ltd.. All test data presented in this test report is only applicable to presented test sample.		

CONTENTS

1. General Information5

 1.1 Product Information5

 1.2 Test Facilities5

2. RF Exposure6

 2.1 Standard and Limit.....6

 2.2 Test Data and Results7

Revision History

Revision	Issue Date	Description	Revised By
V1.0	2024-11-01	Initial Release	Lahm Peng

1. General Information

1.1 Product Information

Product Name:	SMART LED BULB
Trade Name:	Franqual
Main Model:	A21-13W
Series Models:	BR30-15W, GU10-5W
Rated Voltage:	Input:AC·120V/60Hz
Hardware Version:	V1.0
Software Version:	V1.0
Note 1: The test data is gathered from a production sample, provided by the manufacturer.	
Note 2: The color of appearance and model name of series models listed are different from the main model, but the circuit and the electronic construction are the same, declared by the manufacturer.	

Wireless Specification	
Wireless Standard:	Bluetooth BLE, 802.11b/g/n
Operating Frequency:	BT: 2402MHz ~2480MHz, 2.4GWiFi: 2412 MHz ~2462 MHz
RF Output Power:	BLE: -6.34dBm, 2.4GWiFi: 11.8dBm
Antenna Gain:	0dBi
Type of Antenna:	PCB Antenna
Type of Device:	<input type="checkbox"/> Portable Device <input checked="" type="checkbox"/> Mobile Device <input type="checkbox"/> Modular Device

1.2 Test Facilities

Laboratory Name:	Shenzhen CCUT Quality Technology Co., Ltd. 1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China
CNAS Laboratory No.:	L18863
A2LA Certificate No.:	6893.01
FCC Registration No.:	583813
ISED Registration No.:	CN0164
All measurement facilities used to collect the measurement data are located at 1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China.	

2. RF Exposure

2.1 Standard and Limit

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)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz

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, $\pi = 3.1416$;

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

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

2.2 Test Data and Results

For BLE

Mode	Output power to antenna (dBm)	Tune-up Power(dBm)	Max Tune-up Power(dBm)	Output power to antenna (mW)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
GFSK	-6.34	-6(±1)	-5	0.32	0.0001	1.0	PASS

For 2.4G WiFi

Mode	Output power to antenna (dBm)	Tune-up Power(dBm)	Max Tune-up Power(dBm)	Output power to antenna (mW)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11b	11.8	11(±1)	12	15.85	0.0032	1.0	PASS

BLE antenna gain =0dBi, 2.4GWiFi antenna gain=0dBi,

The device supports simultaneous transmission of WiFi and Bluetooth

Calculations for simultaneously transmit

Mode	Ratios	Result	Limit	Result
BLE	0.0001	0.0033	1	PASS
2.4G Wi-Fi	0.0032			

So a SAR test is not required