

RF EXPOSURE Test Report

Product: TV LED Backlight Kit With Sync Box

Trade Mark: ITON

Model Number: iLS-2.0W

FCC ID: 2BF4V-ILS-20W

Prepared for

Iton Technology Corp.

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Longgang District

Prepared by

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TEST RESULT CERTIFICATION

Applicant's Name : Iton Technology Corp.
Address : Room 1302, Block A, Building 4, Tianan Cyber Park, Huangge
North Road, Longgang District
Manufacturer's Name : Iton Technology Corp.
Address : Room 1302, Block A, Building 4, Tianan Cyber Park, Huangge
North Road, Longgang District

Product description

Product name : TV LED Backlight Kit With Sync Box
Model Number : iLS-2.0W

Standards : FCC CFR 47 PART 1 , 1.1310

Test procedure : KDB 447498 D01 General RF Exposure Guidance v06

This device described above has been tested by Shenzhen HongBiao Certification& Testing Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the EMC requirements. And it is applicable only to the tested sample identified in the report.

Date of Test :

Date (s) of performance of tests : Aug. 15, 2024~Aug. 29, 2024

Test Result..... : **Pass**

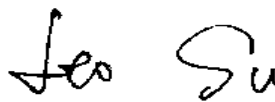
Testing Engineer :


(Z o e S u)

Technical Manager :


(G a r y L u)

Authorized Signatory :


(L e o S u)

[illegible]

1 General Description

1.1 Description of EUT

Product name:	TV LED Backlight Kit With Sync Box
Model name:	iLS-2.0W
Series Model:	HDMI TV Sync backlight EU 3.2M, HDMI TV Sync backlight EU 3.8M, HDMI TV Sync backlight EU 4.5M
Different of series model:	All models have the same circuit and module, except for the model and strip length.
Operation frequency:	BLE: 2402-2480MHz 2.4G WiFi: IEEE 802.11b/g/n20: 2412~2462 MHz
Modulation type:	BLE: GFSK 2.4G WiFi: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Bit Rate of transmitter:	BLE: 1Mbps, 2Mbps 2.4G WiFi: IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS15
Antenna type:	PCB Antenna
Antenna gain:	BLE: 1.32dBi 2.4G WiFi: 1.32dBi
Max. output power:	BLE: 5.39dBm 2.4G WiFi: 15.94dBm
Hardware version:	V1.3
Software version:	V1.0
Battery:	N/A
Power supply:	DC 5V from adapter AC 120V/60Hz
Adapter information:	N/A

1.2 Test Mode

Pretest Test Mode	Description of Mode
1	TX
2	/
3	/

1.3 Test Setup

See photographs of the test setup in the report for the actual setup and connections between EUT and support equipment.

1.4 Ancillary Equipment

Equipment	Model	S/N	Manufacturer
Adapter	XY36LH-120300VH-EW	/	XING YUAN ELECTRONICS CO., LTD
Laptop	NbDE-WFH9	XYKPM22A1 3001799	Huawei Terminal Co., Ltd

2 Test Facilities and Accreditations

2.1 Test Laboratory

Test Site	Shenzhen HongBiao Certification& Testing Co., Ltd
Test Site Location	Room 102, 201, Building 2, Yuanwanggu RFID Industrial Park, Tongguan Road, Tianliao Community, Yutang Street, Guangming District, Shenzhen, China
Telephone:	(86-755) 2998 9321
Fax:	(86-755) 2998 5110
FCC Registration No.:	CN1341
A2LA Certificate No.:	6765.01

2.2 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15°C~35°C
Relative Humidity:	20%~75%
Air Pressure:	98kPa~101kPa

2.3 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

The data and results quoted in this document are true and accurate values, and uncertainties are not involved in the calculations.

In addition, components and mass production processes that are similar to testing equipment may introduce additional deviations, and the manufacturer is solely responsible for the continued compliance of the equipment.

Measurement Frequency Range	U, (dB)	Note
RF frequency	2×10^{-5}	
RF power, conducted	± 0.57 dB	
Temperature	± 1 degree	
Humidity	± 5 %	

2.4 Test Software

Software name	Manufacturer	Model	Version
RF Test System	MWRF	MTS 8310	V2.0.0.0

3 List of Test Equipment

RF							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E041	MXG Anaio Signal Generator	Agilent	N5181A	MY47070421	2024-05-17	2025-05-16
2	HB-E042	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW500	132108	2024-05-17	2025-05-16
3	HB-E043	MXG Anaio Signal Generator	Agilent	N5182A	US46240335	2024-05-17	2025-05-16
4	HB-E044	Signal & spectrum Analyzer	R&S	FSV3044	101264	2024-05-17	2025-05-16
5	HB-E045	RF Control Box	Noyetec	NY100-R FCB	N/A	/	/
6	HB-E058	Thermometer Clock Humidity Monitor	N/A	HTC-1	N/A	/	/

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

4 RF Exposure

4.1 Standalone SAR test exclusion considerations

4.1.1. Limit

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).

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

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

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm(20cm)

P_d the limit of MPE, 1mW/cm².

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

4.1.2. Test Result

BLE:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm²

2.4GWi-Fi:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

Power density limited: 1mW/ cm²

R=20cm

$mW = 10^{(dBm/10)}$

antenna gain Numeric = $10^{(dBi/10)} = 10^{(3/10)} = 2$

BLE 1M:

Chann el Freq. (MHz)	modulatio n	conducte d power	Tune- up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	(dBi)	Num eric		
2402	GFSK	5.35	5±1	6	3.981	1.32	1.36	0.0011	1
2440		5.21	5±1	6	3.981	1.32	1.36	0.0011	1
2480		4.74	5±1	6	3.981	1.32	1.36	0.0011	1

BLE 2M:

Chann el Freq. (MHz)	modulatio n	conducte d power	Tune- up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	(dBi)	Num eric		
2402	GFSK	5.39	5±1	6	3.981	1.32	1.36	0.0011	1
2440		5.24	5±1	6	3.981	1.32	1.36	0.0011	1
2480		4.77	5±1	6	3.981	1.32	1.36	0.0011	1

2.4GWiFi:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2412	802.11b	15.44	15±1	16	39.810717	1.32	0.01045	1
2437		14.88	15±1	16	39.810717	1.32	0.01045	1
2462		15.03	15±1	16	39.810717	1.32	0.01045	1
2412	802.11g	15.45	15±1	16	39.810717	1.32	0.01045	1
2437		15.94	15±1	16	39.810717	1.32	0.01045	1
2462		15.91	15±1	16	39.810717	1.32	0.01045	1
2412	802.11n H20	14.98	15±1	16	39.810717	1.32	0.01045	1
2437		14.51	15±1	16	39.810717	1.32	0.01045	1
2462		14.66	15±1	16	39.810717	1.32	0.01045	1

Conclusion:

For the max result: 0.01045≤1g SAR, No SAR is required.

***** END OF REPORT *****