



Test report No:
2210426R-RF-US-P20V01

FCC TEST REPORT

Product Name	Connected Sleep & Wake-Up Light
Trademark	PHILIPS
Model and /or type reference	HF3670, HF3671, HF3672, HF3673, HF3674
FCC ID	2APFC-HF367XA
Applicant's name / address	Philips Consumer Lifestyle B.V. Tussendiepen 4, 9206 AD Drachten, The Netherlands
Test method requested, standard	KDB 447498 D01V06 FCC Part1.1310
Verdict Summary	IN COMPLIANCE
Documented By (name / position & signature)	Adma Lu/ Project Engineer <i>Adma Lu</i>
Approved by (name / position & signature)	Jack Zhang/ Supervisor <i>Jack Zhang</i>
Date of issue	2022-02-21
Report Version	V1.0
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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Jan. 15, 2022
Date (start test)	Jan. 16, 2022
Date (finish test)	Feb. 13, 2022

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
U_N	: Nominal voltage
T_x	: Transmitter
R_x	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

TEST FACILITY

USA : FCC Designation Number: CN1199

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2210426R-RF-US-P20V01	V1.0	Initial issue of report.	2022-02-21

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with KDB 447498 and FCC Part 1.1310.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
 - Chapter 1.1 General Description of the Item(s).
8. Note: This report is based on DEKRA report (Report NO.: 2210426R-RF-US-P20V01). The customer stated that the antenna information in the original report was incorrect, and the maximum gain of antenna should be 3.3dBi. PCB of power supply HF20 was updated and an alternative DC-DC (IC01) EC2330 was added. After evaluation, no addition test need to be re-tested. Compliance the Class I permissive change.

1. GENERAL INFORMATION

1.1. General Description of the Item(s)

Product Name/PMN.....:	Connected Sleep & Wake-Up Light
Model No.....:	HF3670, HF3671, HF3672, HF3673, HF3674
Trademark.....:	PHILIPS
FCC ID.....:	2APFC-HF367XA
Manufacturer.....:	Philips Consumer Lifestyle B.V.
Manufacturer address.....:	Tussendiepen 4, 9206 AD Drachten, The Netherlands
EUT identification :	2210426R-1 is used for radiated test items

Note: Model HF3672 is chosen to perform test.

Wireless specification.....:	WIFI
Operating frequency range(s).....:	2400~2483.5MHz
Type of modulation.....:	DSSS: BPSK,QPSK,CCK OFDM: BPSK, QPSK, 16QAM, 64QAM
Number of channel.....:	802.11b/g/n(20MHz): 11 802.11n(40MHz): 7

Rated power supply.....:	Voltage and Frequency	
	<input type="checkbox"/>	AC: 220 - 240 V, 50/60 Hz
	<input checked="" type="checkbox"/>	100 - 240 Vac, 50/60 Hz for adapter 24 Vdc for Connected Sleep & Wake-Up Light
	<input type="checkbox"/>	DC: 12 - 24 Vdc
	<input type="checkbox"/>	Battery:
	<input type="checkbox"/>	Battery: 3.7 V

Note: The General Description of the Item(s) in clause 1 are provided and confirmed by the client.

2. RF Exposure Evaluation

2.1.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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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.

2.2. Test Procedure

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

The temperature and related humidity: 18°C and 78% RH.

2.3. Test Result of RF Exposure Evaluation

Product	:	Connected Sleep & Wake-Up Light
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

Power Density

The tune-up tolerance is 1 dB, so the maximum conducted power we used to calculate RF exposure is 26.48 dBm.

Standalone modes:

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Limit of Power Density S(mW/cm ²)	Power Density at R = 20 cm (mW/cm ²)
WIFI	2400 ~ 2483.5	29.78	1	0.189

Note: The safety distance is 20cm for Connected Sleep & Wake-Up Light without any other radio equipment.

_____ The End _____