Maximum Permissible Exposure

Equipment	:	**Wireless Gateway Pro**
Brand Name	:	**PHILIPS**
Model No.	:	**LCN1850/05**
FCC ID	:	**2AGBW-LCN1850**
Standard	:	**IEEE C95.1**
Applicant / Manufacturer	:	**Philips Lighting(China) Investment Co., Ltd.** Building 9, Lane 888, Tianlin Road, Minhang District, Shanghai 200233 China

The product sample received on Jun. 06, 2016 and completely tested on Jun. 22, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in IEEE C95.1 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Kevin Liang / Assistant Manager

Testing Laboratory
1190

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Revision History

Report No.	Version	Description	Issued Date
FA681022	Rev. 01	Initial issue of report	Sep. 14, 2016
FA681022	Rev. 02	Revise Typo	Sep. 26, 2016

1 Human Exposure Assessment

1.1 Maximum Permissible Exposure

1.1.1 Limit of Maximum Permissible Exposure

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/ cm²)**	**Averaging Time |E|²,|H|² or S (minutes)**
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
Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/ cm²)**	**Averaging Time |E|²,|H|² or S (minutes)**
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
Note 1: f = frequency in MHz ; *Plane-wave equivalent power density Note 2: For the applicable limit, see FCC 1.1310				

1.1.2 MPE Calculation Method

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

1.1.3 Result of Maximum Permissible Exposure (2.4G)

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11 Protocol**	**Ch. Frequency (MHz)**	**Channel Number**	**Number of Transmit Chains (N_{TX})**	**RF Output Power (dBm)**
2400-2483.5	b	2412-2462	1-11 [11]	1	10.11
2400-2483.5	g	2412-2462	1-11 [11]	1	15.02
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1	15.90
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	1	12.89
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.					

Worst Maximum RF Output Power Result					
Exposure Environment	General Population / Uncontrolled Exposure				
Separation Distance (cm)	20				
Condition	**RF Output Power (dBm)**				
Modulation Mode	**N_{TX}**	**Output power**	**DG (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**
HT20	1	15.90	2.40	18.30	0.01345
Maximum Permissible Exposure Limit (mW/cm²)					1
Note 1: N_{TX} = Number of Transmit Chains					

1.1.4 Result of Maximum Permissible Exposure (Zigbee)

RF General Information					
Frequency Range (MHz)	**Modulation Mode**	**Ch. Frequency (MHz)**	**Channel Number**	**Number of Transmit Chains (N_{TX})**	**RF Output Power (dBm)**
2400-2483.5	Zigbee	2405-2480	15	1	15.48
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.					

Worst Maximum RF Output Power Result					
Exposure Environment		General Population / Uncontrolled Exposure			
Separation Distance (cm)		20			
Condition		**RF Output Power (dBm)**			
Modulation Mode	**N_{TX}**	**RF Output Power**	**Antenna Gain (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**
Zigbee	1	15.48	1.70	17.18	0.01039
Maximum Permissible Exposure Limit (mW/cm²)					1

1.1.5 Result of Maximum Permissible Exposure (Co-location)

Worst Maximum RF Output Power Result							
Exposure Environment		General Population / Uncontrolled Exposure					
Separation Distance (cm)		20					
Condition		**RF Output Power (dBm)**					
Modulation Mode	**N_{TX}**	**RF Output Power (dBm)**	**DG (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**	**Limit (mW/cm²)**	**Ratio**
2.4G-HT20	1	15.90	2.40	18.30	0.01345	1	0.01345
Zigbee	1	15.48	1.70	17.18	0.01039	1	0.01039
Co-location Total							0.02384
Maximum Permissible Exposure Limit							1

Note 1: NTX = Number of Transmit Chains.

Note.2: Both of the WLAN 2.4GHz Band and WLAN 5GHz Band can transmit simultaneously, the formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Note 3: Refer to KDB 865664 D02 RF Exposure Reporting v01r02 for MPE Calculation Colocation.