



TEST REPORT
IEC 62560
Self-Ballasted LED-Lamp
for general lighting services by voltage > 50V Safety specifications

Report Number: 704022014769-00

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Name of Testing Laboratory preparing the Report: TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Applicant's name: Zhejiang MEKA Electric Co., Ltd.

Address: NO.8 Canghai Road, Lihai Town, Binhai New City,
Shaoxing, Zhejiang Province, PEOPLE'S REPUBLIC OF CHINA

Test specification:

Standard: IEC 62560:2011, AMD1:2015

Test procedure: GS Mark

Non-standard test method: N/A

Test Report Form No.: IEC62560C

Test Report Form(s) Originator: DEKRA Certification B.V.

Master TRF: Dated 2018-12-21

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Test item description :	LED Lamp
Trade Mark :	N/A
Manufacturer	Same as applicant
Model/Type reference	See model list in general product information.
Ratings	220-240V~; 50/60Hz; Max. 6500K; Details see model list in general product information

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒	CB Testing Laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch No.151 Heng Tong Road. Shanghai 200070 P.R. China
Testing location/ address.....:		No. 1999, Duhui Road, Shanghai, 201108, P. R. China
Tested by (name, function, signature).....:		Xudong ZANG Project Handler
Approved by (name, function, signature)....:		Wei SUN Designated Reviewer
		
☐	Testing procedure: CTF Stage 1:	
Testing location/ address.....:		N/A
Tested by (name, function, signature).....:		N/A
Approved by (name, function, signature)....:		N/A
☐	Testing procedure: CTF Stage 2:	
Testing location/ address.....:		N/A
Tested by (name + signature)		N/A
Witnessed by (name, function, signature) .:		N/A
Approved by (name, function, signature)....:		N/A
☐	Testing procedure: CTF Stage 3:	
☐	Testing procedure: CTF Stage 4:	
Testing location/ address.....:		N/A
Tested by (name, function, signature).....:		N/A
Witnessed by (name, function, signature) .:		N/A
Approved by (name, function, signature)....:		N/A
Supervised by (name, function, signature) :		N/A

List of Attachments (including a total number of pages in each attachment): Requirements of AfPS GS 2019:01 PAK 3.1 have been evaluated and found to be met by evaluation	
Summary of testing: All applicable hazards are covered by the harmonized standard	
Tests performed (name of test and test clause): Unless otherwise specified, Complete tests are performed on models of different PCBs. Construction check and gauge test are applied on all models IEC/TR 62778 tests are performed on model MK-020011001792, After evaluations on the measurement results, the model is classified as RG0 Requirements of EK1 decision 657-17 have been evaluated and found to be met by test The products comply with the safety requirement.	Testing location: TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch No. 1999, Duhui Road, Shanghai, 201108, P. R. China
Summary of compliance with National Differences (List of countries addressed): The deviation between EN 62560:2012+A1:2015+A11:2019 and IEC 62560:2011/A1:2015 is considered	
Copy of marking plate: The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks. (See Construction Data form for electrical equipment and machinery)	

Test item particulars	LED Lamp
Classification of installation and use	Normal use
Supply Connection	E14; E27; B15d; B22d; GU10 lamp cap
.....	
Possible test case verdicts:	
- test case does not apply to the test object..... : N/A	
- test object does meet the requirement..... : P (Pass)	
- test object does not meet the requirement..... : F (Fail)	
Testing :	
Date of receipt of test item : 2020-09-22	
Date (s) of performance of tests : 2020-09-22 to 2020-11-26	
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a ☒ comma / ☐ point is used as the decimal separator. Remark: The following contents are included and as attachments of this test report: • Test report IEC 62560:2011+AMD1:2015 • Appendix 1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES • Appendix 2: Requirements of EN 62493:2015 • Appendix 3: Requirements of IEC/TR 62778:2014 • Appendix 4: Photographs	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 62560-2:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided :	☐ Yes ☒ Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) : Same as applicant	
General product information and other remarks:	
The LED lamp for normal use. Models of PCB7 are LED filament lamps, external view of these models please refer to photos, the filament in bulb may varies but the rated wattage won't change. Models of PCB5 and PCB6 are with remote controller, please refer to photos.	

Model list:

Model	Rated Wattage (W)	Rated Current (mA)	Lamp Cap	Circuit	PCB Layout	LED No.	Lamp Shape
MK-020011001776	7	60	E27	1	1	20	A60
MK-020011001777	7	60	B22d	1	1	20	A60
MK-020011001778	10	87	E27	1	1	20	A60
MK-020011001779	10	87	B22d	1	1	20	A60
MK-020011001780	11	95	E27	1	1	28	A65
MK-020011001781	11	95	B22d	1	1	28	A65
MK-020011001782	11	95	E27	1	1	28	G95
MK-020011001783	11	95	B22d	1	1	28	G95
MK-020011001784	7	60	E27	1	1	28	A60
MK-020011001785	7	60	B22d	1	1	28	A60
MK-020011001786	10	87	E27	1	1	28	A60
MK-020011001787	10	87	B22d	1	1	28	A60
MK-020011001788	11	95	E27	1	1	44	A65
MK-020011001789	11	95	B22d	1	1	44	A65
MK-020011001790	11	95	E27	1	1	44	G95
MK-020011001791	11	95	B22d	1	1	44	G95
MK-020011001792	14	70	E27	1	1	42	A65
MK-020011001793	14	70	B22d	1	1	42	A65
MK-020011001794	14	70	E27	1	1	72	A65
MK-020011001795	14	70	B22d	1	1	72	A65
MK-020011001796	14	70	E27	1	1	42	G120
MK-020011001797	14	70	B22d	1	1	42	G120
MK-020011001798	14	70	E27	1	1	72	G120
MK-020011001799	14	70	B22d	1	1	72	G120
MK-020011001800	7	60	E27	2	2	16	A60
MK-020011001801	7	60	B22d	2	2	16	A60
MK-020011001802	9	87	E27	2	2	16	A60
MK-020011001803	9	87	B22d	2	2	16	A60
MK-020011001804	11	95	E27	2	2	32	A65
MK-020011001805	11	95	B22d	2	2	32	A65
MK-020011001806	11	95	E27	2	2	32	G95
MK-020011001807	11	95	B22d	2	2	32	G95
MK-020011001808	14	70	E27	2	2	40	A65
MK-020011001809	14	70	B22d	2	2	40	A65
MK-020011001810	14	70	E27	2	2	40	G120
MK-020011001811	14	70	B22d	2	2	40	G120
MK-020011001812	3.5	38	E14	3	3	12	C37
MK-020011001813	3.5	38	B15d	3	3	12	C37
MK-020011001814	3.5	38	E27	3	3	12	C37
MK-020011001815	3.5	38	B22d	3	3	12	C37
MK-020011001816	3.5	38	E14	3	3	12	P45
MK-020011001817	3.5	38	B15d	3	3	12	P45
MK-020011001818	3.5	38	E27	3	3	12	G45
MK-020011001819	3.5	38	B22d	3	3	12	G45
MK-020011001820	3.5	38	GU10	3	3	12	GU10 110°
MK-020011001821	3.5	38	GU10	3	3	12	GU10 38°
MK-020011001822	5	43	E14	3	3	12	C37
MK-020011001823	5	43	B15d	3	3	12	C37
MK-020011001824	5	43	E27	3	3	12	C37
MK-020011001825	5	43	B22d	3	3	12	C37
MK-020011001826	5	43	E14	3	3	12	P45
MK-020011001827	5	43	B15d	3	3	12	P45

MK-020011001828	5	43	E27	3	3	12	G45
MK-020011001829	5	43	B22d	3	3	12	G45
MK-020011001830	5	43	GU10	3	3	12	GU10 110°
MK-020011001831	5	43	GU10	3	3	12	GU10 38°
MK-020011001832	5.5	48	E14	3	3	12	C37
MK-020011001833	5.5	48	B15d	3	3	12	C37
MK-020011001834	5.5	48	E27	3	3	12	C37
MK-020011001835	5.5	48	B22d	3	3	12	C37
MK-020011001836	5.5	48	E14	3	3	12	P45
MK-020011001837	5.5	48	B15d	3	3	12	P45
MK-020011001838	5.5	48	E27	3	3	12	G45
MK-020011001839	5.5	48	B22d	3	3	12	G45
MK-020011001840	5.5	48	GU10	3	3	12	GU10 110°
MK-020011001841	5.5	48	GU10	3	3	12	GU10 38°
MK-020011001842	3.5	38	E14	3	3	20	C37
MK-020011001843	3.5	38	B15d	3	3	20	C37
MK-020011001844	3.5	38	E27	3	3	20	C37
MK-020011001845	3.5	38	B22d	3	3	20	C37
MK-020011001846	3.5	38	E14	3	3	20	P45
MK-020011001847	3.5	38	B15d	3	3	20	P45
MK-020011001848	3.5	38	E27	3	3	20	G45
MK-020011001849	3.5	38	B22d	3	3	20	G45
MK-020011001850	3.5	38	GU10	3	3	20	GU10 110°
MK-020011001851	3.5	38	GU10	3	3	20	GU10 38°
MK-020011001852	5	43	E14	3	3	20	C37
MK-020011001853	5	43	B15d	3	3	20	C37
MK-020011001854	5	43	E27	3	3	20	C37
MK-020011001855	5	43	B22d	3	3	20	C37
MK-020011001856	5	43	E14	3	3	20	P45
MK-020011001857	5	43	B15d	3	3	20	P45
MK-020011001858	5	43	E27	3	3	20	G45
MK-020011001859	5	43	B22d	3	3	20	G45
MK-020011001860	5	43	GU10	3	3	20	GU10 110°
MK-020011001861	5	43	GU10	3	3	20	GU10 38°
MK-020011001862	5.5	48	E14	3	3	20	C37
MK-020011001863	5.5	48	B15d	3	3	20	C37
MK-020011001864	5.5	48	E27	3	3	20	C37
MK-020011001865	5.5	48	B22d	3	3	20	C37
MK-020011001866	5.5	48	E14	3	3	20	P45
MK-020011001867	5.5	48	B15d	3	3	20	P45
MK-020011001868	5.5	48	E27	3	3	20	G45
MK-020011001869	5.5	48	B22d	3	3	20	G45
MK-020011001870	5.5	48	GU10	3	3	20	GU10 110°
MK-020011001871	5.5	48	GU10	3	3	20	GU10 38°
MK-020011002177	4	38	GU10	3	8	20	GU10 110° Glass
MK-020011001872	5.5	38	E14	2	4	16	C37
MK-020011001873	3.5	38	B15d	2	4	16	C37
MK-020011001874	3.5	38	E27	2	4	16	C37
MK-020011001875	3.5	38	B22d	2	4	16	C37
MK-020011001876	3.5	38	E14	2	4	16	P45
MK-020011001877	3.5	38	B15d	2	4	16	P45
MK-020011001878	3.5	38	E27	2	4	16	G45
MK-020011001879	3.5	38	B22d	2	4	16	G45
MK-020011001880	3.5	38	GU10	2	4	16	GU10 110°
MK-020011001881	3.5	38	GU10	2	4	16	GU10 38°
MK-020011001882	5	43	E14	2	4	16	C37

MK-020011001883	5	43	B15d	2	4	16	C37
MK-020011001884	5	43	E27	2	4	16	C37
MK-020011001885	5	43	B22d	2	4	16	C37
MK-020011001886	5	43	E14	2	4	16	P45
MK-020011001887	5	43	B15d	2	4	16	P45
MK-020011001888	5	43	E27	2	4	16	G45
MK-020011001889	5	43	B22d	2	4	16	G45
MK-020011001890	5	43	GU10	2	4	16	GU10 110°
MK-020011001891	5	43	GU10	2	4	16	GU10 38°
MK-020011001892	5.5	48	E14	2	4	16	C37
MK-020011001893	5.5	48	B15d	2	4	16	C37
MK-020011001894	5.5	48	E27	2	4	16	C37
MK-020011001895	5.5	48	B22d	2	4	16	C37
MK-020011001896	5.5	48	E14	2	4	16	P45
MK-020011001897	5.5	48	B15d	2	4	16	P45
MK-020011001898	5.5	48	E27	2	4	16	G45
MK-020011001899	5.5	48	B22d	2	4	16	G45
MK-020011001900	5.5	48	GU10	2	4	16	GU10 110°
MK-020011001901	5.5	48	GU10	2	4	16	GU10 38°
MK-020011001902	7	60	E27	4	5	28	A60
MK-020011001903	7	60	B22d	4	5	28	A60
MK-020011001904	10	87	E27	4	5	28	A60
MK-020011001905	10	87	B22d	4	5	28	A60
MK-020011002178	10	87	E27	4	5	28	G95
MK-020011002179	10	87	B22d	4	5	28	G95
MK-020011001906	11	95	E27	4	5	44	A65
MK-020011001907	11	95	B22d	4	5	44	A65
MK-020011001908	11	95	E27	4	5	44	G95
MK-020011001909	11	95	B22d	4	5	44	G95
MK-020011001910	14	70	E27	4	5	42	A65
MK-020011001911	14	70	B22d	4	5	42	A65
MK-020011001912	14	70	E27	4	5	72	A65
MK-020011001913	14	70	B22d	4	5	72	A65
MK-020011001914	14	70	E27	4	5	42	G120
MK-020011001915	14	70	B22d	4	5	42	G120
MK-020011001916	14	70	E27	4	5	72	G120
MK-020011001917	14	70	B22d	4	5	72	G120
MK-020011001918	5	43	E14	5	6	20	C37
MK-020011001919	5	43	B15d	5	6	20	C37
MK-020011001920	5	43	E27	5	6	20	C37
MK-020011001921	5	43	B22d	5	6	20	C37
MK-020011001922	5	43	E14	5	6	20	P45
MK-020011001923	5	43	B15d	5	6	20	P45
MK-020011001924	5	43	E27	5	6	20	G45
MK-020011001925	5	43	B22d	5	6	20	G45
MK-020011001926	5	43	GU10	5	6	20	GU10 110°
MK-020011001927	7	60	E27	2	7	4	A60
MK-020011001928	7	60	B22d	2	7	4	A60
MK-020011001929	7	60	E27	2	7	4	ST64
MK-020011001930	7	60	B22d	2	7	4	ST64
MK-020011001931	7	60	E27	2	7	4	G80
MK-020011001932	7	60	B22d	2	7	4	G80
MK-020011001933	7	60	E27	2	7	4	G95
MK-020011001934	7	60	B22d	2	7	4	G95
MK-020011001935	7	60	E27	2	7	4	G125
MK-020011001936	7	60	B22d	2	7	4	G125

MK-020011001937	4.5	39	E27	2	7	4	A60
MK-020011001938	4.5	39	B22d	2	7	4	A60
MK-020011001939	4.5	39	E27	2	7	4	ST64
MK-020011001940	4.5	39	B22d	2	7	4	ST64
MK-020011001941	4.5	39	E27	2	7	4	G80
MK-020011001942	4.5	39	B22d	2	7	4	G80
MK-020011001943	4.5	39	E27	2	7	4	G95
MK-020011001944	4.5	39	B22d	2	7	4	G95
MK-020011001945	4.5	39	E27	2	7	4	G125
MK-020011001946	4.5	39	B22d	2	7	4	G125
MK-020011002180	7	60	E27	2	7	4	A60
MK-020011002181	7	60	B22d	2	7	4	A60
MK-020011002182	7	60	E27	2	7	4	ST64
MK-020011002183	7	60	B22d	2	7	4	ST64
MK-020011002184	7	60	E27	2	7	4	G80
MK-020011002185	7	60	B22d	2	7	4	G80
MK-020011002186	7	60	E27	2	7	4	G95
MK-020011002187	7	60	B22d	2	7	4	G95
MK-020011002188	7	60	E27	2	7	4	G125
MK-020011002189	7	60	B22d	2	7	4	G125
MK-020011002190	4.5	39	E27	2	7	4	A60
MK-020011002191	4.5	39	B22d	2	7	4	A60
MK-020011002192	4.5	39	E27	2	7	4	ST64
MK-020011002193	4.5	39	B22d	2	7	4	ST64
MK-020011002194	4.5	39	E27	2	7	4	G80
MK-020011002195	4.5	39	B22d	2	7	4	G80
MK-020011002196	4.5	39	E27	2	7	4	G95
MK-020011002197	4.5	39	B22d	2	7	4	G95
MK-020011002198	4.5	39	E27	2	7	4	G125
MK-020011002199	4.5	39	B22d	2	7	4	G125
MK-020011002200	7	60	E27	2	7	4	A60
MK-020011002201	7	60	B22d	2	7	4	A60
MK-020011002202	7	60	E27	2	7	4	ST64
MK-020011002203	7	60	B22d	2	7	4	ST64
MK-020011002204	7	60	E27	2	7	4	G80
MK-020011002205	7	60	B22d	2	7	4	G80
MK-020011002206	7	60	E27	2	7	4	G95
MK-020011002207	7	60	B22d	2	7	4	G95
MK-020011002208	7	60	E27	2	7	4	G125
MK-020011002209	7	60	B22d	2	7	4	G125
MK-020011002210	4.5	39	E27	2	7	4	A60
MK-020011002211	4.5	39	B22d	2	7	4	A60
MK-020011002212	4.5	39	E27	2	7	4	ST64
MK-020011002213	4.5	39	B22d	2	7	4	ST64
MK-020011002214	4.5	39	E27	2	7	4	G80
MK-020011002215	4.5	39	B22d	2	7	4	G80
MK-020011002216	4.5	39	E27	2	7	4	G95
MK-020011002217	4.5	39	B22d	2	7	4	G95
MK-020011002218	4.5	39	E27	2	7	4	G125
MK-020011002219	4.5	39	B22d	2	7	4	G125
MK-020011002220	7	60	E27	2	7	4	A60
MK-020011002221	7	60	B22d	2	7	4	A60
MK-020011002222	7	60	E27	2	7	4	ST64
MK-020011002223	7	60	B22d	2	7	4	ST64
MK-020011002224	7	60	E27	2	7	4	G80
MK-020011002225	7	60	B22d	2	7	4	G80

MK-020011002226	7	60	E27	2	7	4	G95
MK-020011002227	7	60	B22d	2	7	4	G95
MK-020011002228	7	60	E27	2	7	4	G125
MK-020011002229	7	60	B22d	2	7	4	G125
MK-020011002230	4.5	39	E27	2	7	4	A60
MK-020011002231	4.5	39	B22d	2	7	4	A60
MK-020011002232	4.5	39	E27	2	7	4	ST64
MK-020011002233	4.5	39	B22d	2	7	4	ST64
MK-020011002234	4.5	39	E27	2	7	4	G80
MK-020011002235	4.5	39	B22d	2	7	4	G80
MK-020011002236	4.5	39	E27	2	7	4	G95
MK-020011002237	4.5	39	B22d	2	7	4	G95
MK-020011002238	4.5	39	E27	2	7	4	G125
MK-020011002239	4.5	39	B22d	2	7	4	G125

IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict

4	GENERAL REQUIREMENTS		P
4.1	The lamp shall be so designed and constructed that in normal use cause no danger to the user.		P
4.2	Self-ballasted LED-Lamp are non-repairable.		P

5	MARKING		P
5.1	Mandatory marking		P
	- mark of origin		P
	- rated supply voltage (V)	220-240V~	P
	- rated wattage (W)	Refer to model list	P
	- rated frequency (Hz).....	50/60Hz	P
5.2	Addition marking		P
	- rated current (A)	Refer to models list	P
	- weight significantly higher		P
	- special conditions or restrictions		P
	Not suitable for dimming; symbol  used		P
	- not suitable for water contact		P
5.3	Marking durable and legible		P
	rubbing 15 s water, 15 s petroleum; marking legible		P

6	INTERCHANGEABILITY		P
6.1	Cap interchangeability in accordance with IEC 60061-1		P
	Gauge in accordance with IEC 60061-3		P
6.2	Bending moment and mass imparted by the lamp at the lampholder		P
	Bending moment imparted by the lamp at the lampholder (Nm)	0,03Nm	P
	Mass not exceeding value table 2 or as specified in IEC 60061-1 (kg)	0,063 kg	P

7	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		P
	Internal, basic insulated or live metal parts not accessible		P
	Tested with a test finger with a force of 10 N		P

IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict
	Compliance checked with appropriate gauges		P

8	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
8.2	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	≥ 4 MΩ for double or reinforced insulation		P
8.3	Immediately after clause 8.2 electric strength test for 1 min		P
	Double or reinforced insulation, 4U + 2000 V		P
	No flashover or breakdown		P

9	MECHANICAL STRENGTH		P
9.2.1	Torsion resistance of unused lamps		P
	B15d or E14 Cap..... 1,15 Nm		P
	B22d, E26, E26d or E27 Cap..... 3,0 Nm		P
	E11 or E12 Cap..... 0,8 Nm		N/A
	E17 Cap 1,5 Nm		N/A
	E39 or E40 Cap..... 5,0 Nm		N/A
	GX53 Cap 3,0 Nm		N/A
9.3	Compliance criteria		P
	Clause 8 shall comply after the mechanical strength test.		P
9.4	Axial strength of Edison caps		P
	After full insertion into the gauge an axial force of Table 4 is applied to the central contact (N)	E14: 80N; E27: 120N	P
	The insulation around the central contact shall remain intact		P

10	CAP TEMPERATURE RISE		P
	The cap temperature rise Δt_s of the lamp shall not exceed 120 K.	E14: Max. 27,8K E27: Max. 38,4K B15d: Max. 35,8K B22d: Max. 21,9K	P

11	RESISTANCE TO HEAT		P
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IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict
	Parts of insulating material providing protection against electric shock, retaining live parts in position, ball-pressure test:	(see appended table)	P

12	RESISTANCE TO FLAME AND IGNITION		P
	External parts of insulating material preventing electric shock glow-wire test 650 °C	(see appended table)	P

13	FAULT CONDITIONS		P
13.2	Fault conditions: where diagram indicates fault condition impairs safety, electronic components have been short-circuited or disconnected	(see appended table)	P
13.3	When operated under fault conditions the lamp		P
	- does not emit flames or molten material		P
	- does not produce flammable gases or smoke		P
	- live parts not accessible		P
	After the tests the insulation resistance with d.c. 1000 V complies with requirements of Cl. 8.1 :		P

14 (16)	CREEPAGE DISTANCES AND CLEARANCES		P
	Creepage distances and clearances according to IEC 61347-1	(see appended table)	P
	Conductive accessible parts according to IEC 60598-1	(see appended table)	P

15	ABNORMAL OPERATION		P
	Non-dimmable self-ballasted lamps are tested on a dimmer or an electronic switch according the test circuit shown in Figure 8		P
	Operate the lamp for 8 h at most onerous dimming level		P
	When operated under abnormal operation the lamp		P
	- does not catch fire		P
	- does not produce flammable gases		P
	- live parts not accessible		P

16	TEST CONDITIONS FOR DIMMABLE LAMPS		N/A
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IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict
	Test are carried out at maximum power setting for Clause 10 and Clause 17		N/A

17	PHOTOBIOLOGICAL SAFETY		P
17.1	UV radiation		N/A
	The LED lamp doesn't exceed 2mW/klm		N/A
17.2	Blue light hazard		P
	Assessed according to IEC TR 62778		P
	LED lamps shall be RG0 or RG1		P

18	INGRESS PROTECTION		N/A
18.1	Lamps shall be suitable for water contact unless marked with Figure 6		N/A
18.2	The lamp is subjected to an IPX4 test according to IEC 60598-1		N/A
	The lamp complies with the compliance provisions of 9.2 of IEC 60598-1		N/A
	Lamps constructed so that it is sealed to exclude water need not to be tested		N/A

IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict

11	TABLE: Ball Pressure Test of Thermoplastics				P
Allowed impression diameter (mm) :			2,0		—
Object/ Part No./ Material		Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
PCB		Refer to CDF	125	1,1	
Enclosure		Refer to CDF	125	1,2	
Lens		Refer to CDF	80	1,1	
Supplementary information:					

12	TABLE: Resistance to heat and fire - Glow wire tests				P
Object/ Part No./ Material	Manufacturer/ trademark	Glow wire test (GWT); (°C)		Verdict	
		650			
		te	ti		
PCB	Refer to CDF	0s	0s	P	
Enclosure	Refer to CDF	0s	0s	P	
Lens	Refer to CDF	0s	0s	P	

13	TABLE: tests of fault conditions		P
Part	Simulated fault	Result	Hazard
Circuit1			
BD	SC	Not work, unrecovered, 240V/0A/0W	NO
C2	SC	Not work, unrecovered, 240V/0A/0W	NO
D2	SC	Not work, unrecovered, 240V/0A/0W	NO
OUTPUT	SC	Not work, recovered, 240V/0,1A/0,5W	NO
LED	SC	Not work, recovered, 240V/0,1A/0,5W	NO
R3	OC	Not work, recovered, 240V/0,1A/0,3W	NO
OUTPUT	OC	Not work, recovered, 240V/0,1A/0,2W	NO
Circuit2			
BD	SC	Not work, unrecovered, 240V/0A/0W	NO
D1	SC	Not work, recovered, 240V/0,1A/0,5W	NO
EC1	SC	Not work, recovered, 240V/0,1A/0,3W	NO
OUTPUT	SC	Not work, recovered, 240V/0,1A/0,4W	NO

IEC 62560			
Clause	Requirement + Test		Verdict
LED	SC	Not work, recovered, 240V/0,1A/0,4W	NO
R	OC	Not work, recovered, 240V/0,1A/0,3W	NO
OUTPUT	OC	Not work, recovered, 240V/0,1A/0,3W	NO
Circuit3			
BD	SC	Not work, unrecovered, 240V/0A/0W	NO
D	SC	Not work, recovered, 240V/0,1A/0,3W	NO
EC	SC	Not work, recovered, 240V/0,1A/0,5W	NO
OUTPUT	SC	Not work, recovered, 240V/0,1A/0,4W	NO
LED	SC	Not work, recovered, 240V/0,1A/0,2W	NO
R	OC	Not work, recovered, 240V/0,1A/0,2W	NO
OUTPUT	OC	Not work, recovered, 240V/0,1A/0,3W	NO
Circuit4			
BD	SC	Not work, unrecovered, 240V/0A/0W	NO
D	SC	Not work, recovered, 240V/0,1A/0,5W	NO
EC	SC	Not work, recovered, 240V/0,1A/0,3W	NO
OUTPUT	SC	Not work, recovered, 240V/0,1A/0,4W	NO
LED	SC	Not work, recovered, 240V/0,1A/0,3W	NO
R	OC	Not work, recovered, 240V/0,1A/0,4W	NO
OUTPUT	OC	Not work, recovered, 240V/0,1A/0,4W	NO
Circuit5			
BD	SC	Not work, unrecovered, 240V/0A/0W	NO
D	SC	Not work, recovered, 240V/0,1A/0,5W	NO
EC	SC	Not work, recovered, 240V/0,1A/0,4W	NO
OUTPUT	SC	Not work, recovered, 240V/0,1A/0,3W	NO
LED	SC	Not work, recovered, 240V/0,1A/0,3W	NO
R	OC	Not work, recovered, 240V/0,1A/0,4W	NO
OUTPUT	OC	Not work, recovered, 240V/0,1A/0,4W	NO

14	TABLE: Clearance And Creepage Distance Measurements						P
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)	
Live parts of different polarity	--	240	1,5	5,2 Min.	2,5	5,2 Min.	
Current-carrying parts and accessible parts	--	240	3,0	7,0 Min.	5,0	7,0 Min.	
Supplementary information:							

IEC 62560						
Clause	Requirement + Test				Result - Remark	Verdict
ANNEX 1	TABLE: Critical components information (See the latest Data form for electrical equipment and machinery.)					P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Description:						
Description:						
Description:						
Supplementary information: ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039. The codes above have the following meaning: A - The component is replaceable with another one, also certified, with equivalent characteristics B - The component is replaceable if authorised by the test house C - Integrated component tested together with the appliance D - Alternative component						

Appendix 1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 62560 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Self-Ballasted LED-Lamp for general lighting services by voltage > 50V– Safety specifications			
Differences according to : EN 62560:2012+A1:2015+A11:2019			
	Scope		—
	Add at the end the following note: NOTE Z1 Radio equipment can be part of the Self-Ballasted lamp.		—
7	Protection against accidental contact with live parts		P
	After the title of Clause 7 add the following new sub clause title 7. Z1		P
7.Z1	General At the end of Clause 7 add the following new sub Clauses 7. Z2, 7.Z2.1 and 7.Z2.2		P
7.Z2	Fixing of conductors		P
7.Z2.1	Requirements		P
	The fixing of the conductors inside the lamp shall be such that, if a conductor becomes loose or detached, the conductor cannot reduce clearances or creepage distances below the values as specified in 14. For the purpose of these requirements, it is assumed that: – two independent fixings will not become loose or detached at the same time; and – parts fixed by means of screws or nuts provided with self-locking washers or other means of locking are not liable to become loose or detached. NOTE Spring washers and the like can provide satisfactory locking		P
7.Z2.2	Compliance criteria		P
	Compliance is checked by inspection, by measurement or in case of doubt by applying a force of 10 N in the most unfavourable direction.		P

Appendix 1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES			
Clause	Requirement + Test	Result - Remark	Verdict
	EXAMPLE Constructions regarded as meeting the requirements include: – close-fitting tubing (for example, a heat shrink or rubber sleeve), applied over the wire and its termination; – conductors connected by soldering and held in place near to the termination, independently of the soldered connection; – conductors connected by soldering and securely hooked in before soldering, provided that the hole through which the conductor is passed is not unduly large; – conductors connected to screw terminals, with an additional fixing near to the terminal that clamps, in the case of stranded conductors, the insulation and not only the conductors; – conductors connected to screw terminals and provided with terminators that are unlikely to become free (for example, ring lugs crimped onto the conductors), however, the pivoting of such terminators is considered; or – short rigid conductors that remain in position when the terminal screw is loosened.		P
Differences according to : EN 62560:2012+A1:2015			
	CENELEC COMMON MODIFICATIONS (EN)		—
	Lamps with E11, E12, E17, E26, E26d; E39 are excluded from this standard		N/A
	Delete from the contents page the line on Annex B.		N/A
	Delete from Clause 5.2 the item a).		N/A
	Include in Clause 14 the Corrigendum January 2012.		P
	Delete Annex B.		N/A
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		—
	No special National conditions		N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		—
	No National deviations		N/A

Appendix 2: Requirements of EN 62493			
Clause	Requirement + Test	Result - Remark	Verdict
4	LIMITS		P
4.1	General		P
	Comply with Van der Hoofden test limit in 4.2.3 or inherently compliant in 4.2.2 and pass assessment procedure for intentional radiators in 4.3		P
4.2	Unintentional radiating part of lighting equipment		P
4.2.2	Lighting equipment deemed to comply with the Van der Hoofden test without testing		P
	1) electronic controlgear	Yes ☐ No ☒	—
	2) incandescent-lamp technology	Yes ☐ No ☒	—
	3) LED-light-source technology	Yes ☒ No ☐	—
	4) OLED-light-source technology	Yes ☐ No ☒	—
	5) high-pressure discharge lamp LED-light-source technologies	Yes ☐ No ☒	—
	6) low-pressure discharge lamp technologies with exposure distance ≥ 50 cm	Yes ☐ No ☒	—
	7) independent auxiliary	Yes ☐ No ☒	—
	Not fulfil any of 1-7 above subject to 4.2.3		—
4.2.3	Applications of limits		P
	Not fulfil any of 1-7 in 4.2.2 but the compliance factor F is ≤ 1		P
4.3	Intentional radiating part of lighting equipment		P
	Comply with one of methods in Clause 7 if intentional radiator		P
5	GENERAL		P
5.1	Measurand		P
	Test head, measuring instrumentation and measuring conditions according Clause 5.1 – 5.8		P
6	MEASUREMENT PROCEDURE FOR THE VAN DER HOOFDEN TEST		P
6.1	General		P
	Measurements carried out under conditions according Clause 6.1 – 6.6	See Table 6	P

Appendix 2: Requirements of EN 62493

Clause	Requirement + Test	Result - Remark	Verdict
7	ASSESSMENT PROCEDURE INTENTIONAL RADIATORS		N/A
7.2	Low-power exclusion method		N/A
7.2.1	Input $P_{\text{Int,rad}}$		—
	Exclusion level P_{max}		—
	Input power $P_{\text{Int,rad}} < \text{exclusion level } P_{\text{max}}$		N/A
7.3	Application of the EMF product standard for body worn-equipment		N/A
	If not Clause 7.2 is met and expose distance ≤ 0.05 m, comply with IEC 62209-2		N/A
7.4	Application of the EMF product standard for base stations		N/A
	If not Clause 7.2 is met and if intentional radiator is base station, comply with IEC 62232		N/A
7.5	Application of another EMF standard		N/A
	If not Clause 7.2 is met and if intentional radiator cannot be considered as in Clause 7.3 or 7.4, comply with IEC 62311		N/A

6	TABLE: Measurement results with Van der Hoofden test head				P
Location of EuT		Measuring distance	Result (F)	Limit (F)	Verdict
On tripod		30 cm	0,09	0,85	P

6	TABLE: Equipment used during test with Van der Hoofden test head		
Equipment	Manufacturer	Type	Id. No.
“Van der Hoofden” test head	AFJ	VDH30	S1201628-YQ
Measurement receiver	AFJ	R 3010	S1201629-YQ

Test set-up, photos

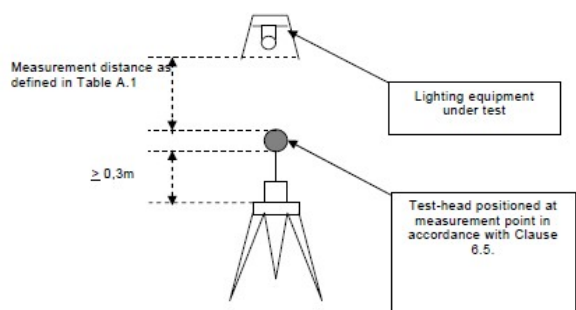


Figure B.1 – Typical measurement arrangement

IEC 2334/09

Appendix 3: Requirements of IEC/TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict
7	MEASUREMENT INFORMATION FLOW		P
7.1	BASIC FLOW		P
	'Law of conservation of luminance' applied		P
	Use of only true luminance/radiance values		P
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		P
	In case Ethr value for RG2 was established the peak value was derived from angular light distribution		N/A
7.2	CONDITIONS FOR THE RADIANCE MEASUREMENT		P
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		P
7.3	SPECIAL CASES (I): REPLACEMENT BY A LAMP OR LED MODULE OF ANOTHER TYPE		N/A
	Light source is a white light source		N/A
	Evaluation done based on highest luminance		N/A
	Evaluation done based on CCT value		N/A
7.4	SPECIAL CASES (II): ARRAYS AND CLUSTERS OF PRIMARY LIGHT SOURCES		N/A
	LED package is evaluated as: ☐ RG0 unlimited ☐ RG1 unlimited		N/A
	Ethr of LED package applies to array		N/A
8	RISK GROUP CLASSIFICATION		P
	Risk group achieved:		P
	-.. Risk Group 0 unlimited		P
	-.. Risk Group 1 unlimited		N/A
	- Ethr (lx) : Distance to reach RG1 (m) :		N/A

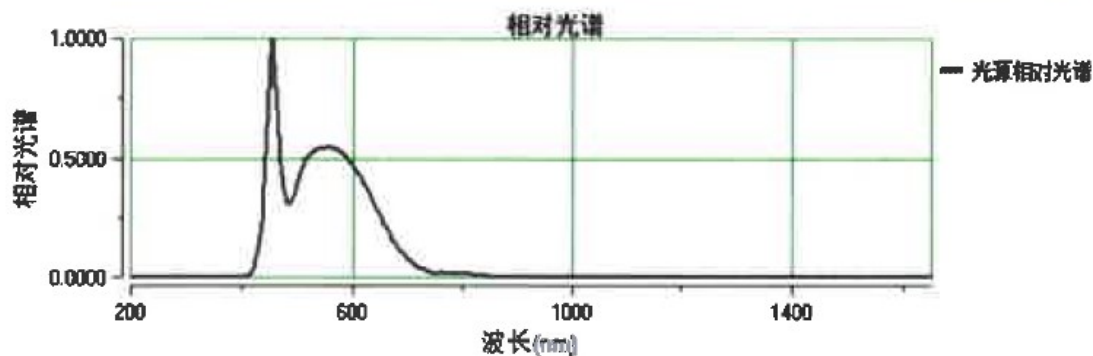
Appendix 3: Requirements of IEC/TR 62778

Clause	Requirement + Test	Result - Remark	Verdict
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TABLE: Spectroradiometric measurement			P
	Measurement performed on:	☐ LED package ☐ LED module ☒ Lamp ☐ Luminaire	
	Model number	MK-020011001792	
	Test voltage (V)	240V~	—
	Test current (mA)	-	—
	Test frequency (Hz)	50Hz	—
	Ambient, t (°C)	25	—
	Measurement distance	☒ 20 cm ☐ ... cm	—
	Source size	☒ Non-small ☐ Small : mm	—
	Field of view	☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	—

Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	6117	
x/y colour coordinates			/	
Blue light hazard radiance	L _B	W/(m ² ·sr ¹)	9,99 x 10 ¹	RG0
Blue light hazard irradiance	E _B	W/m ²	2,59 x 10 ⁰	
Luminance	L	cd/m ²	1,32 x 10 ⁵	
Illuminance	E	lx	3405	

Supplementary information:



Appendix 4: Photographs

Lamp shape:



A60



A60 (filament LED)

Appendix 4: Photographs



A65



C37

Appendix 4: Photographs



G120



G125 (this shape only for LED filament lamp)

Appendix 4: Photographs



G45



G80 (this shape only for LED filament lamp)

Appendix 4: Photographs



G95



G95 (filament LED)

Appendix 4: Photographs



GU10 110°



GU10 110° Glass

Appendix 4: Photographs



GU10 38°



P45

Appendix 4: Photographs



ST64

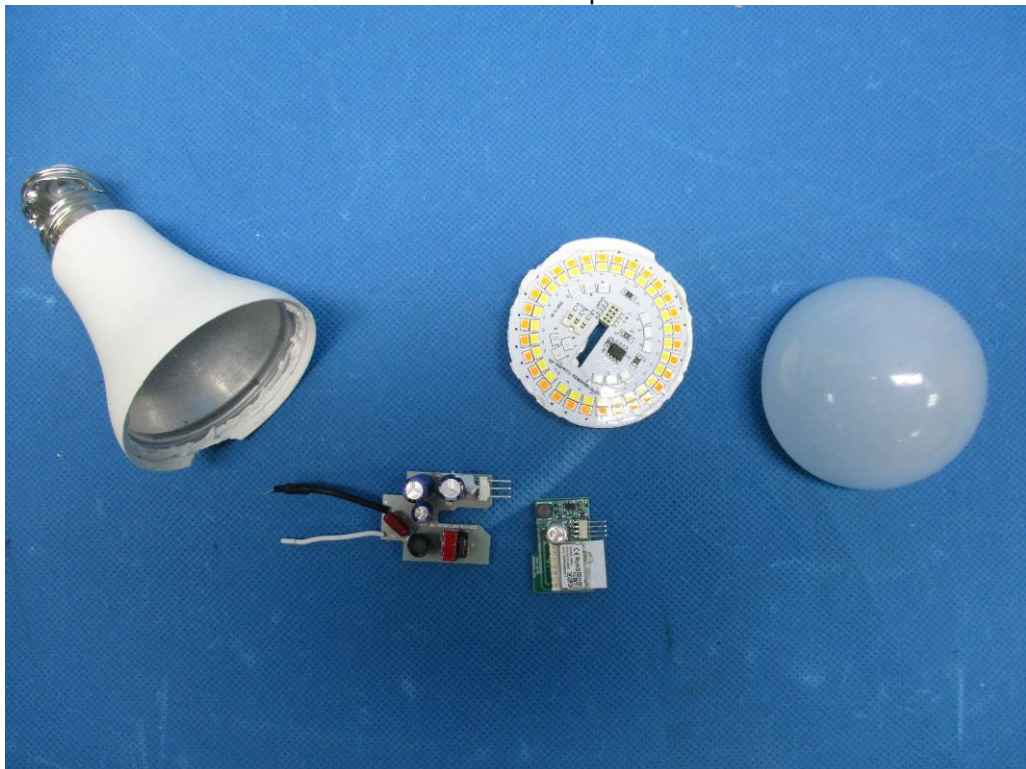


Bulb colour of filament lamp: Clear; Amber; Frost; Smoke

Appendix 4: Photographs

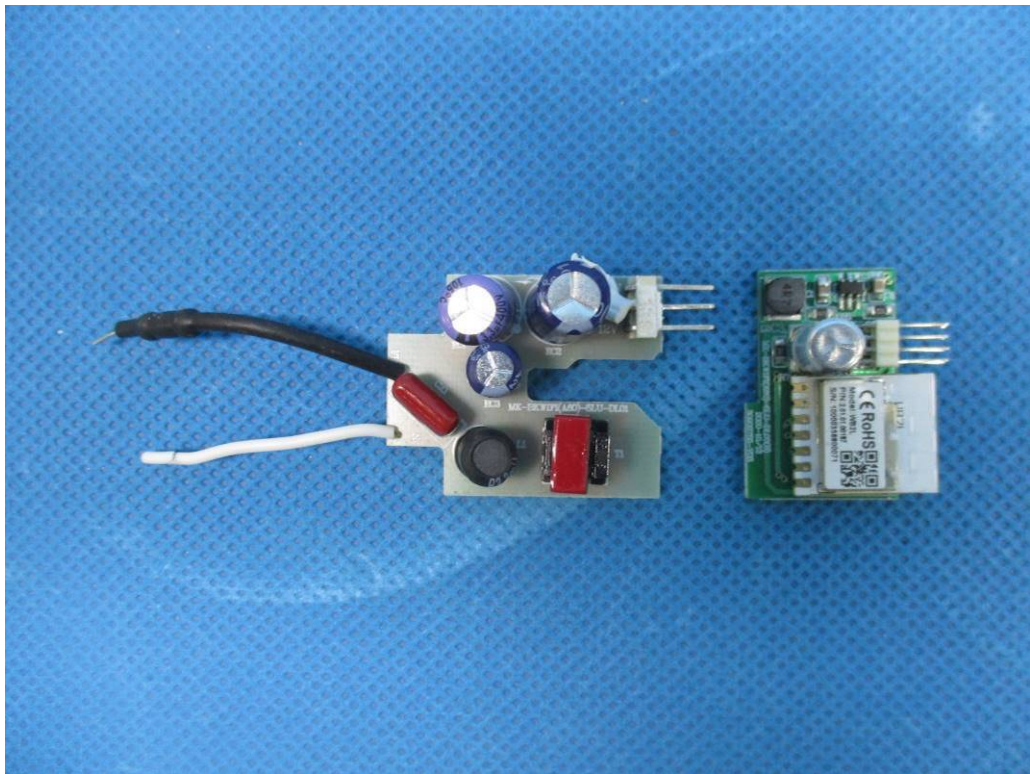


PCB1 A60 shape

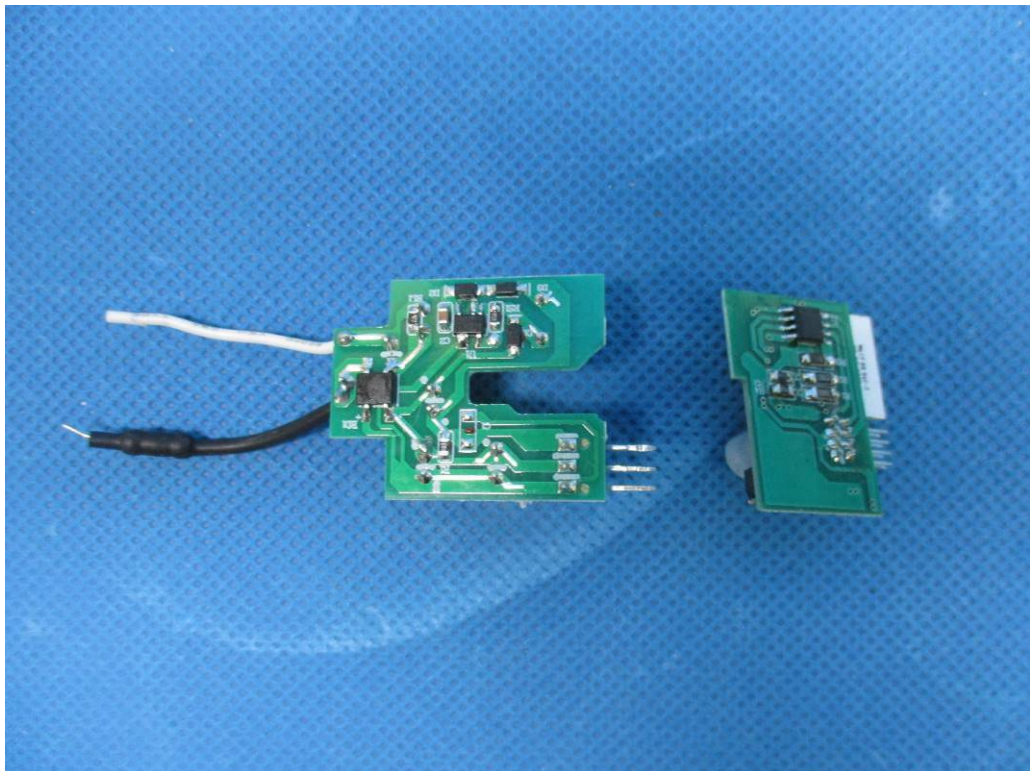


Internal view

Appendix 4: Photographs



PCB

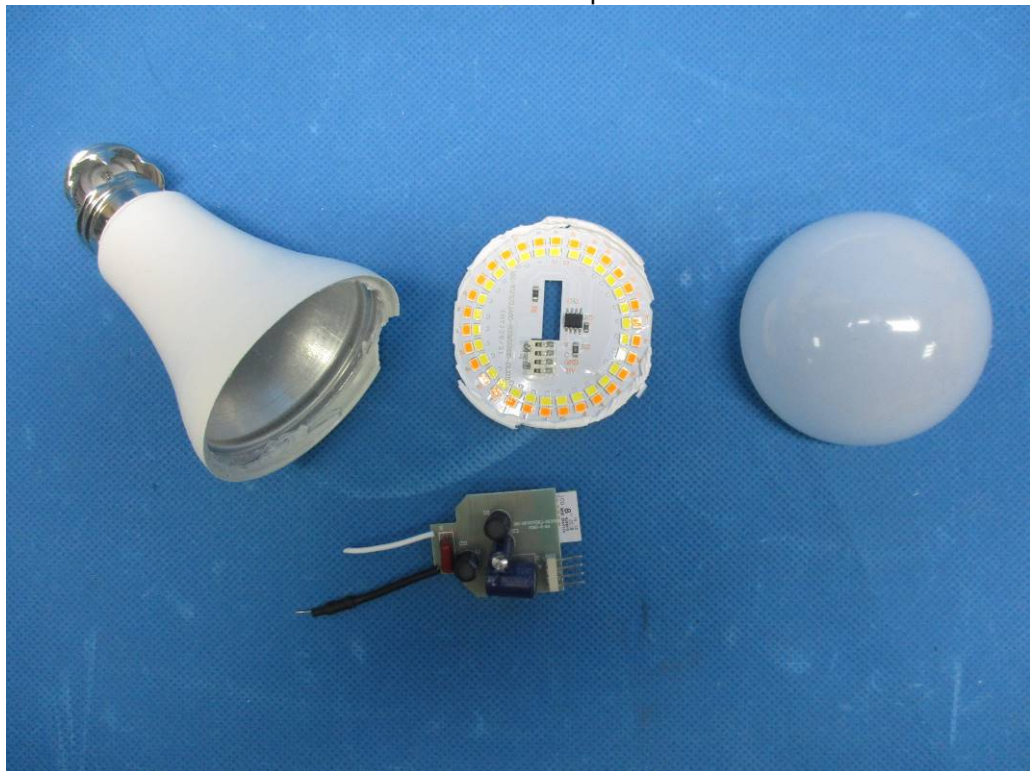


PCB

Appendix 4: Photographs

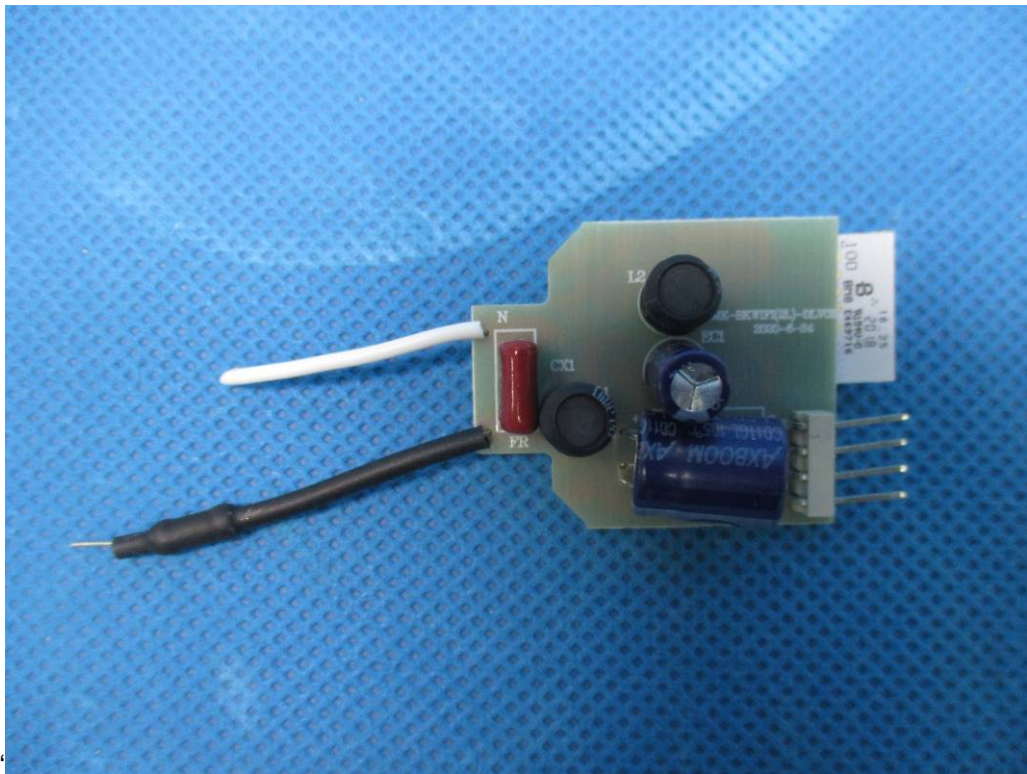


PCB2 A65 shape

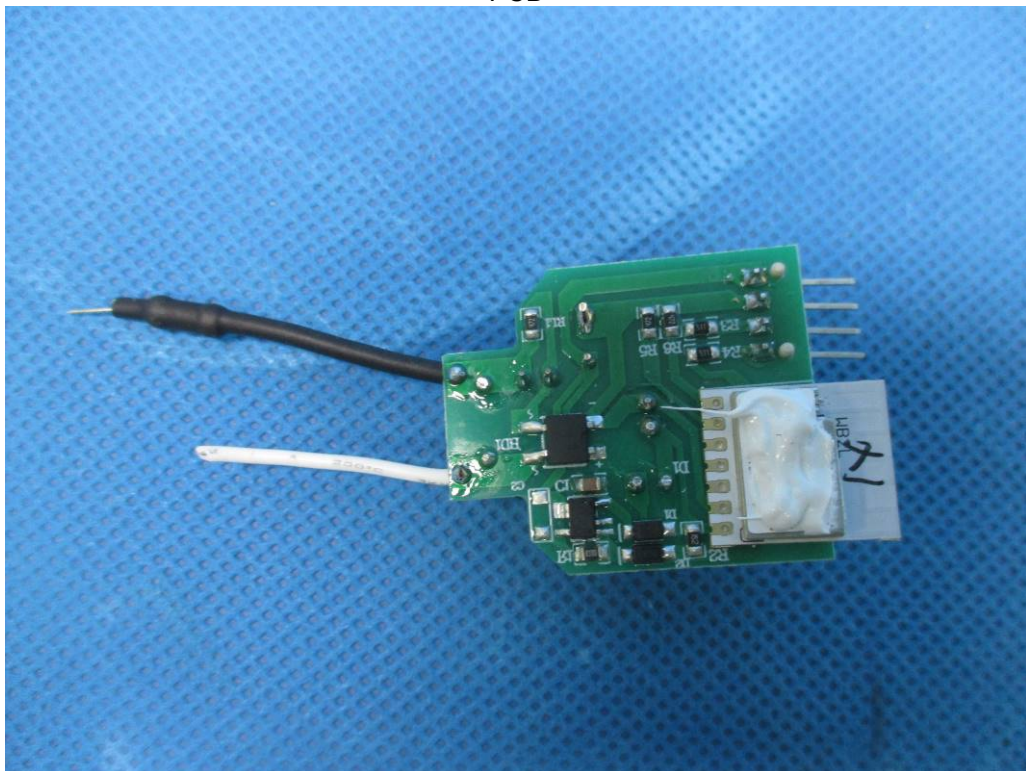


Internal view

Appendix 4: Photographs



PCB

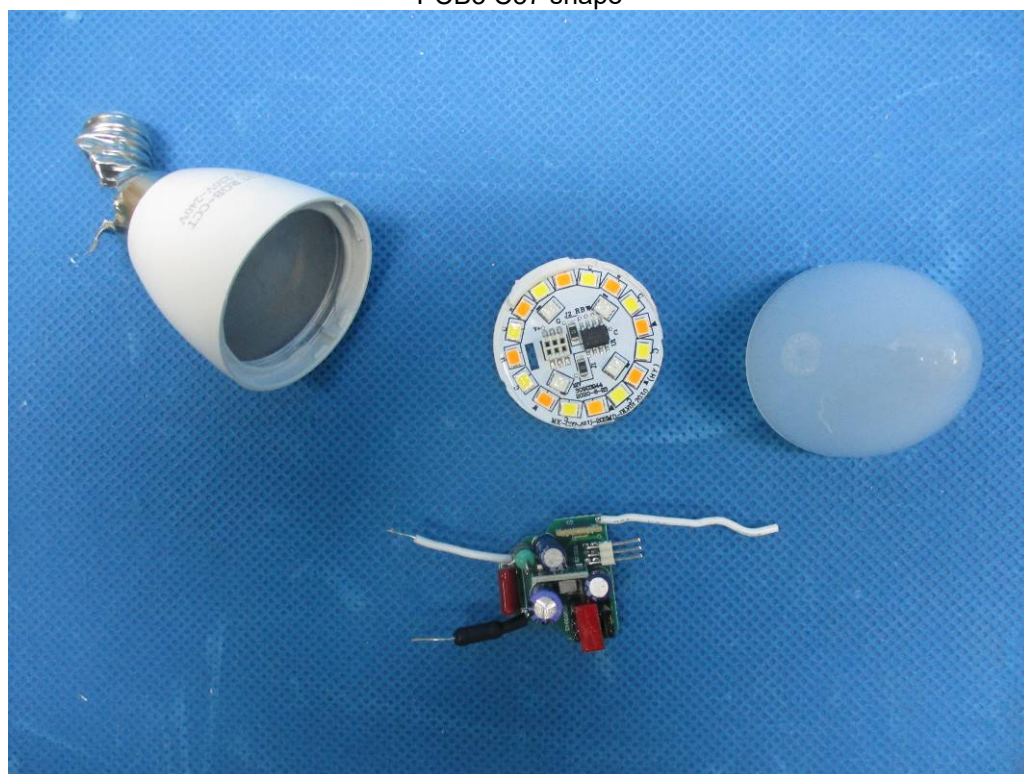


PCB

Appendix 4: Photographs

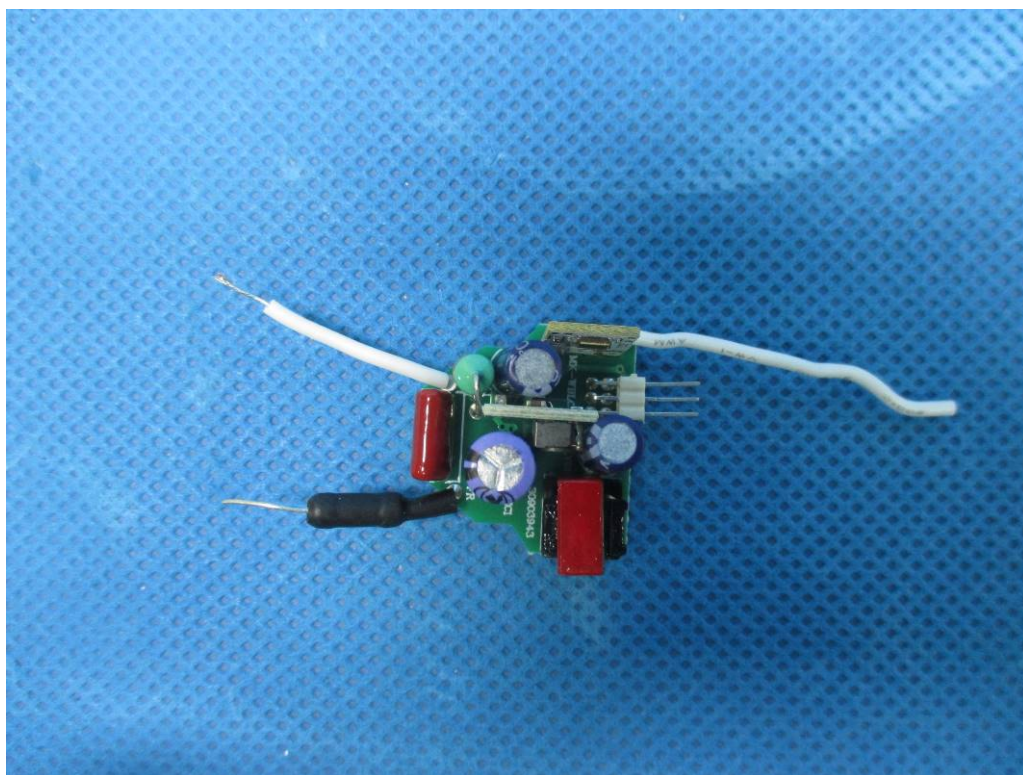


PCB3 C37 shape

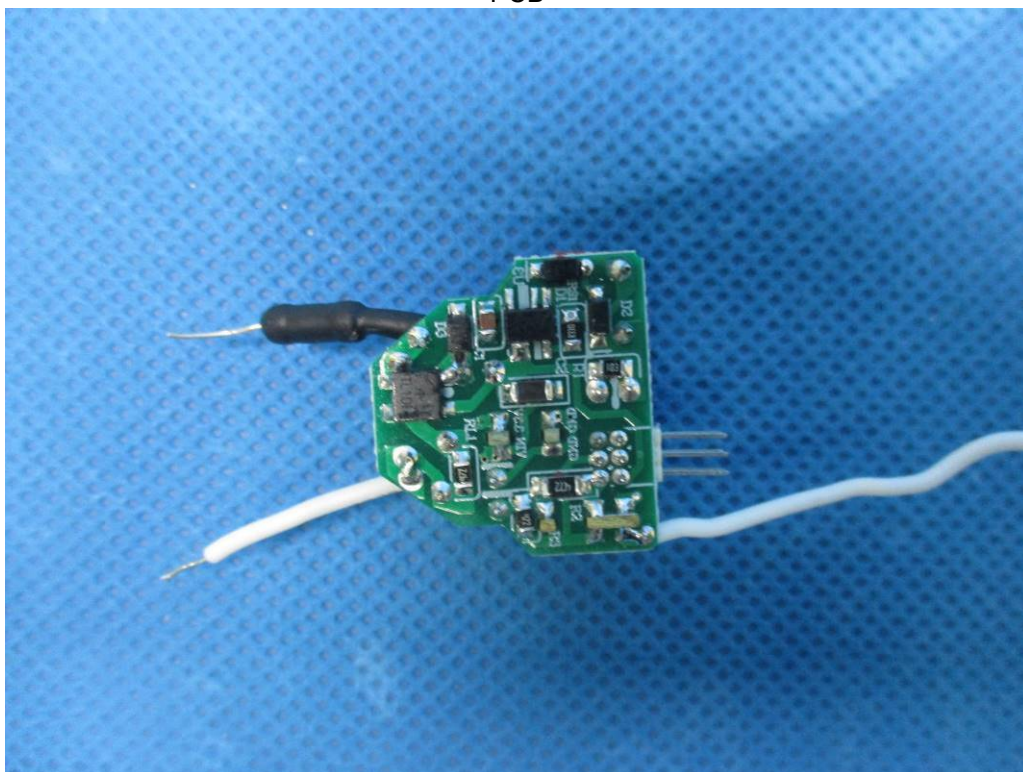


Internal view

Appendix 4: Photographs



PCB



PCB

Appendix 4: Photographs

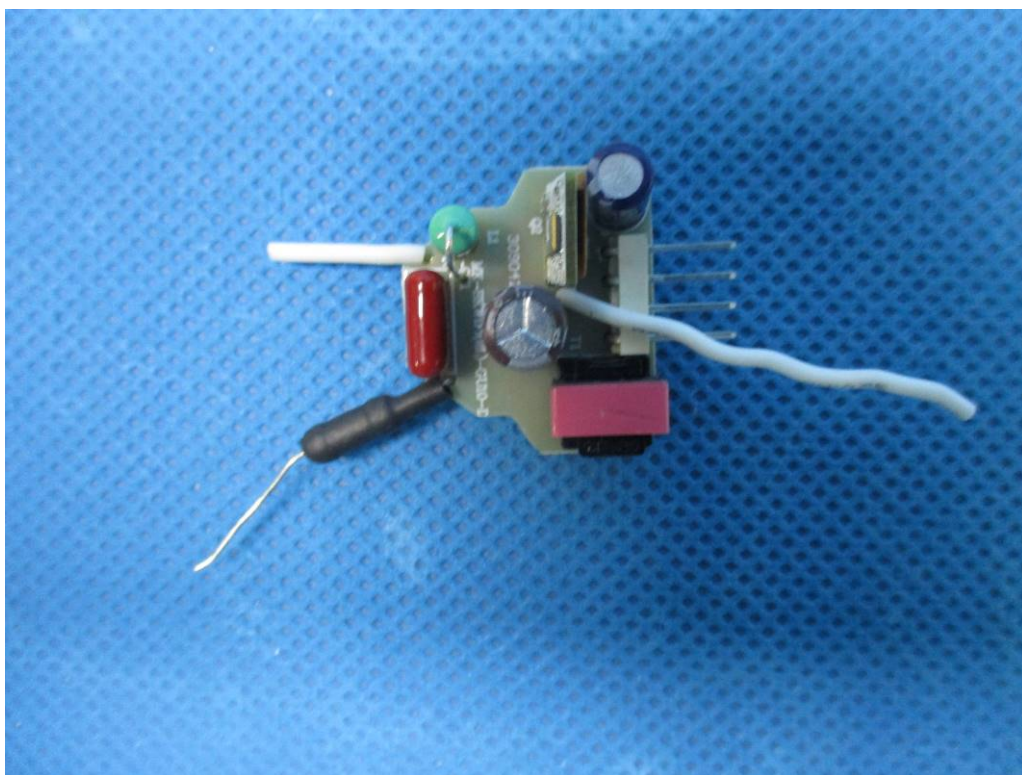


PCB4 G45 shape

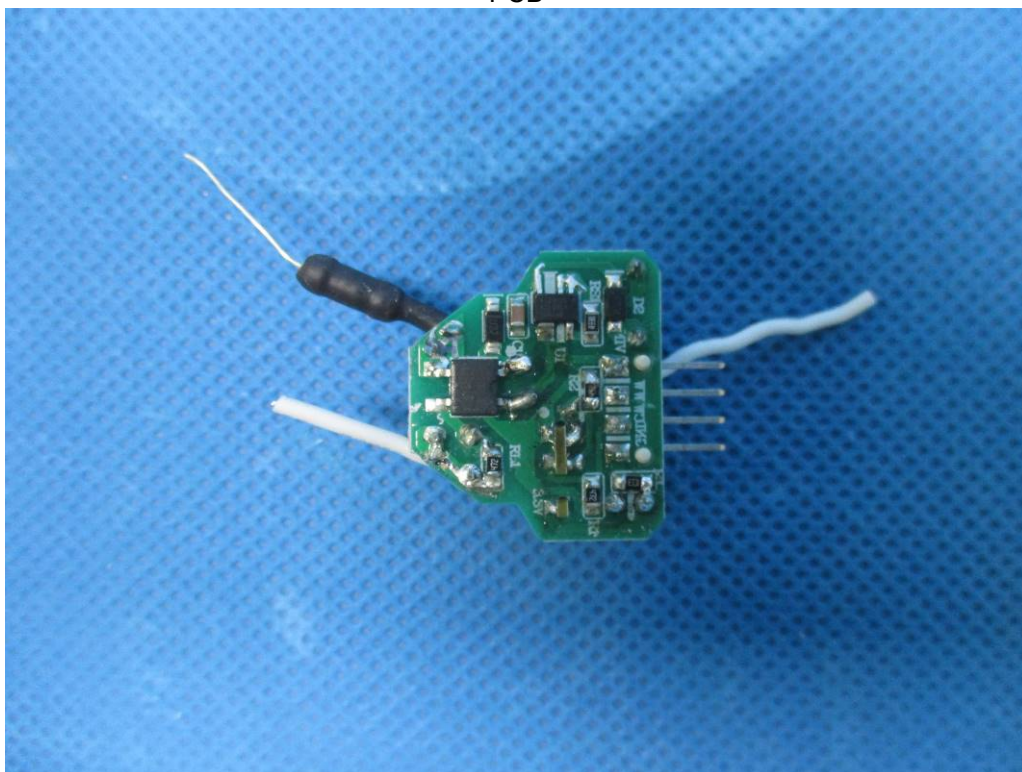


Internal view

Appendix 4: Photographs



PCB



PCB

Appendix 4: Photographs

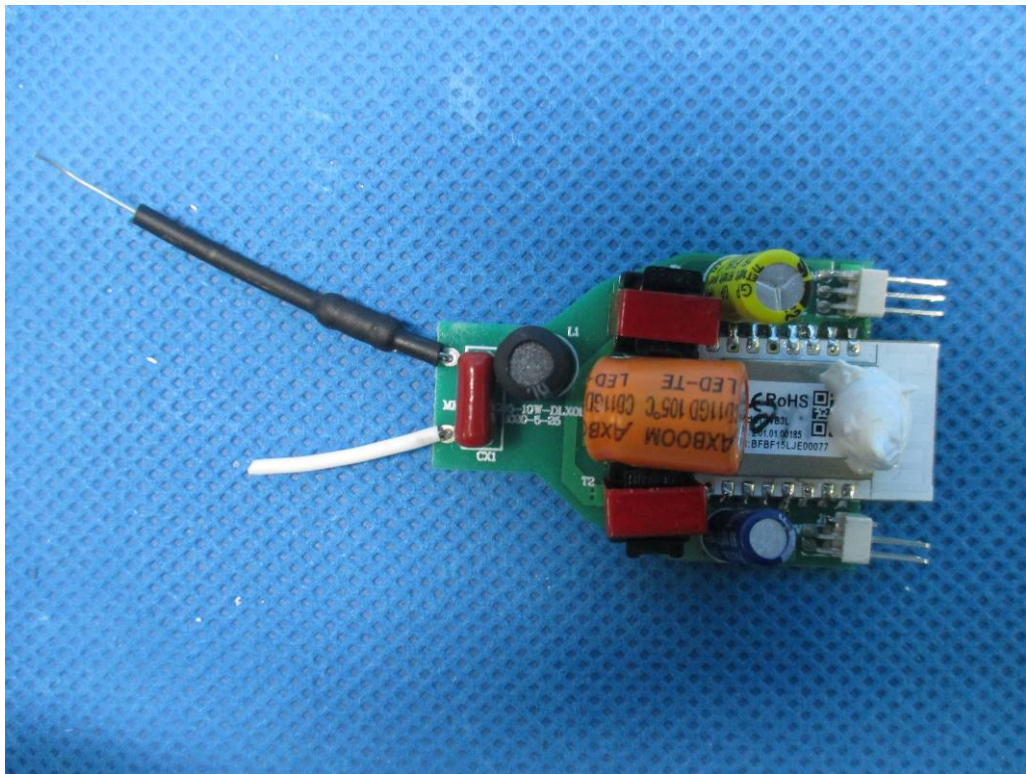


PCB5 A60 shape

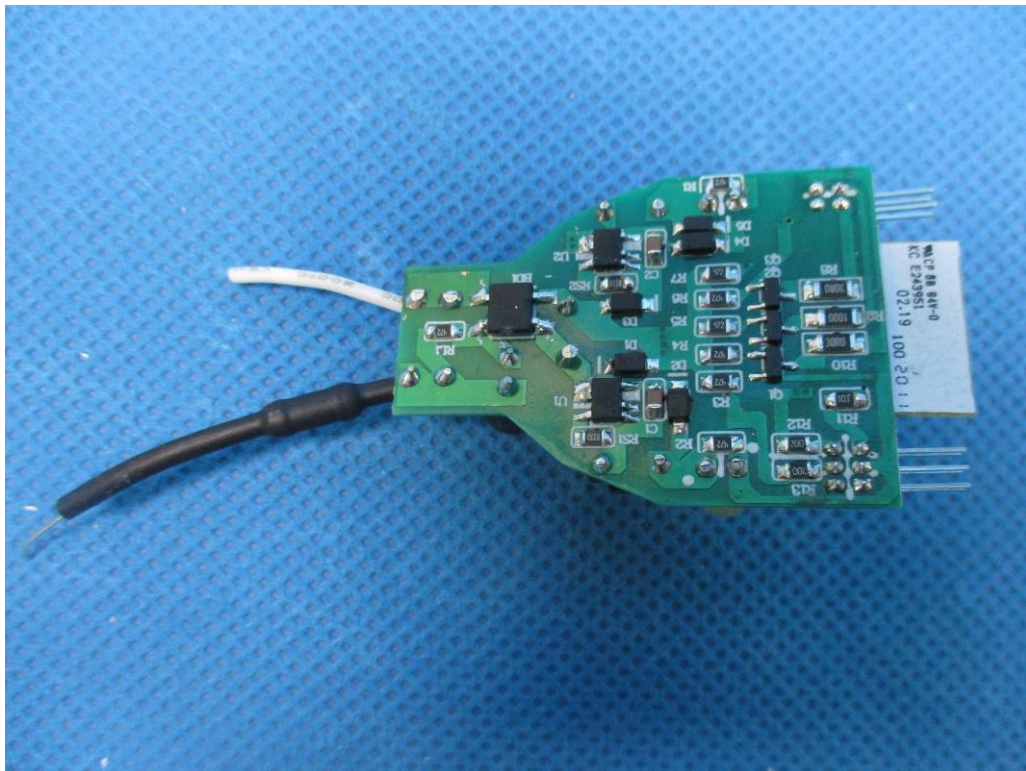


Internal view

Appendix 4: Photographs



PCB

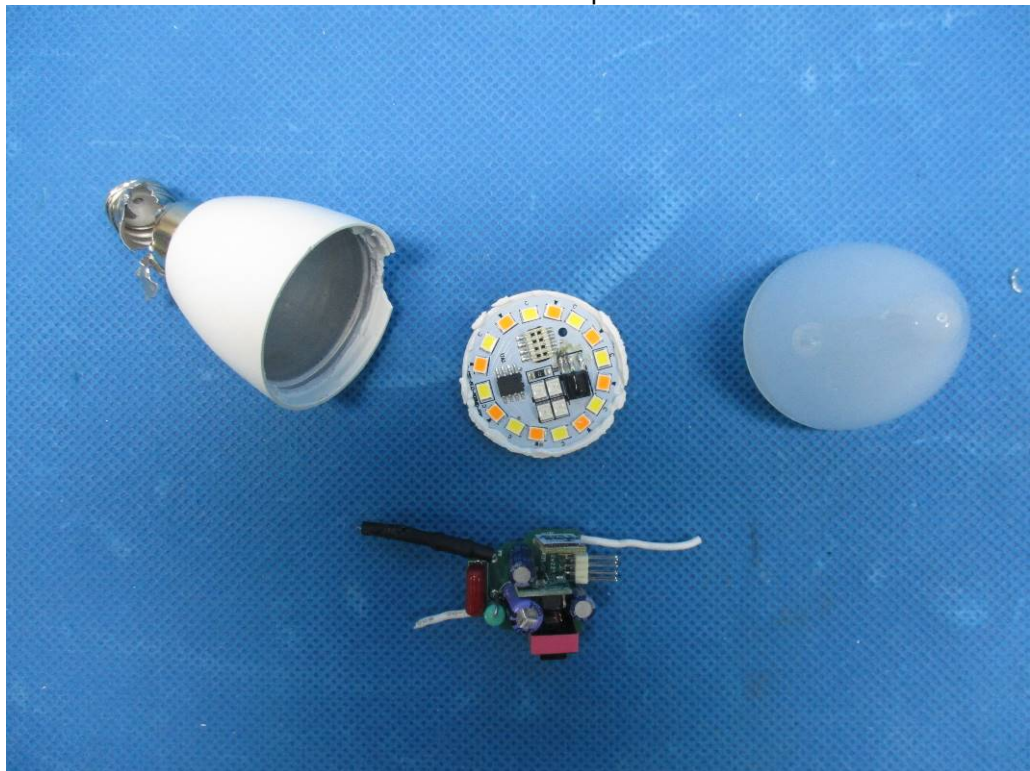


PCB

Appendix 4: Photographs

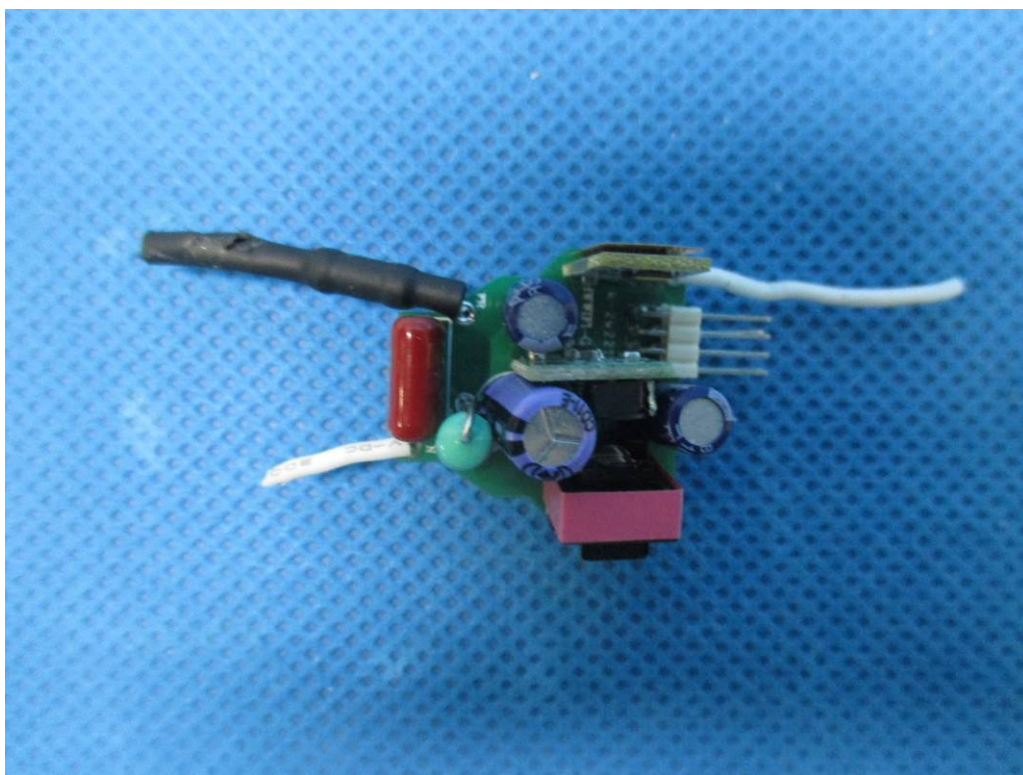


PCB6 C37 shape

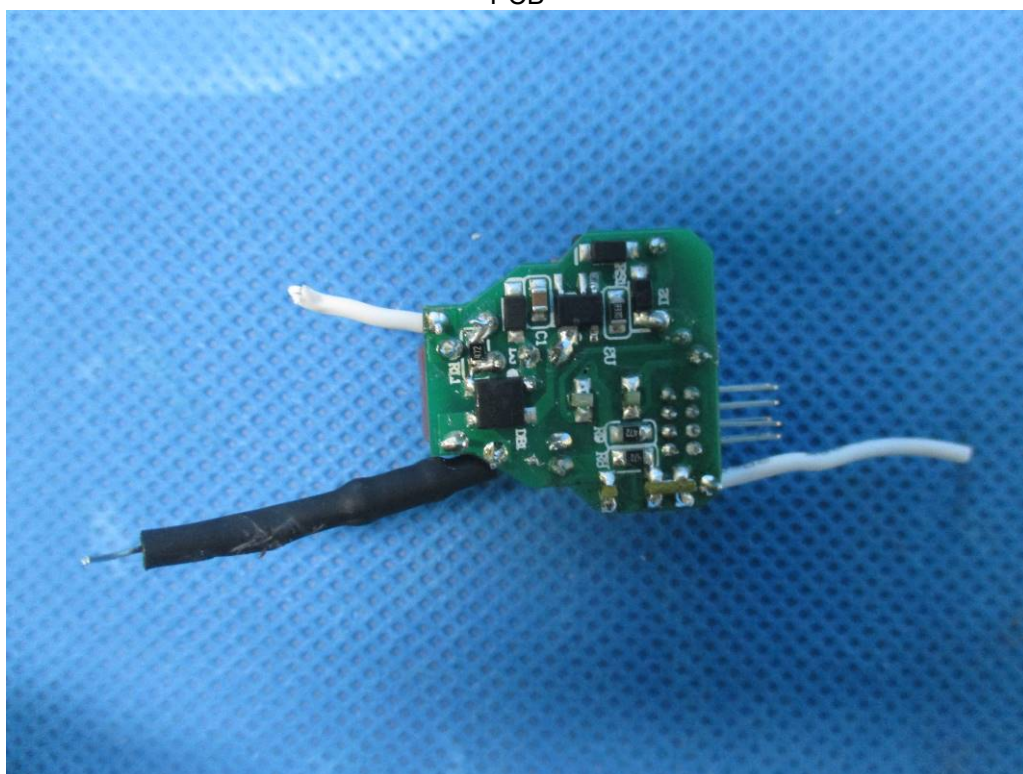


Internal view

Appendix 4: Photographs

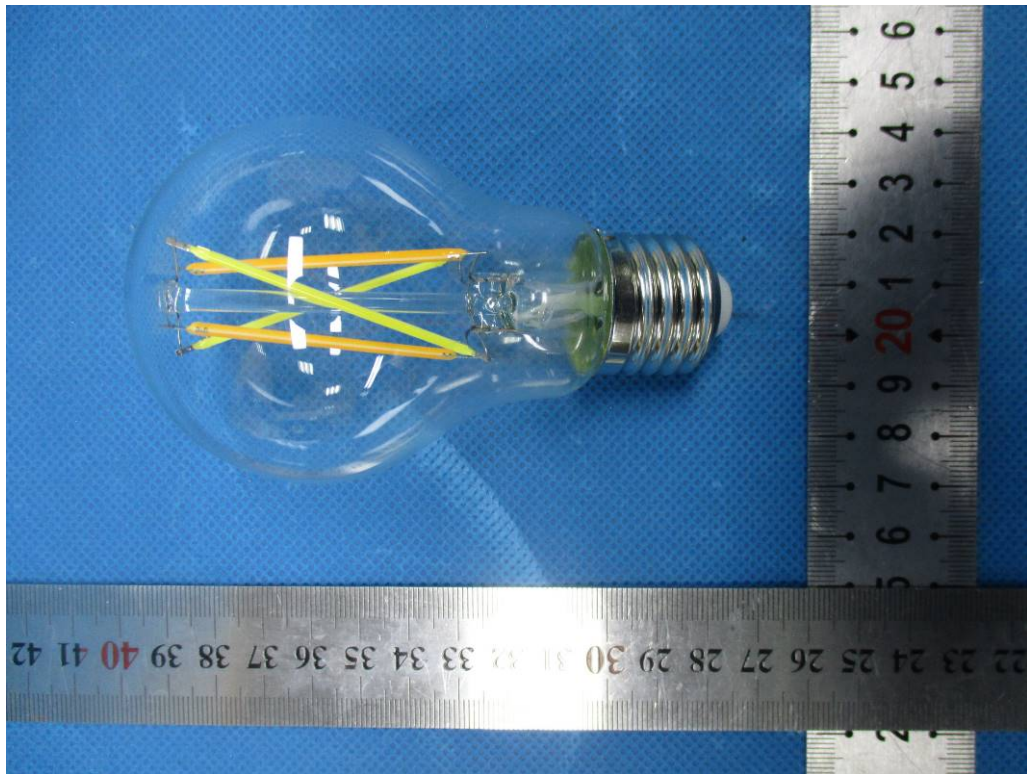


PCB

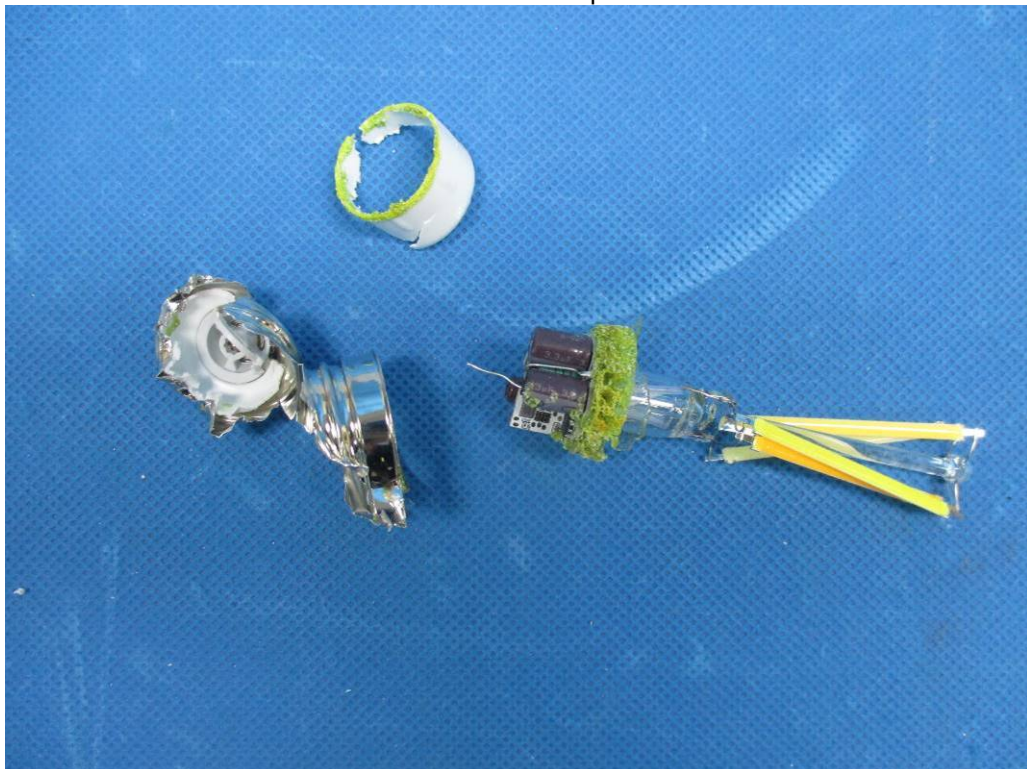


PCB

Appendix 4: Photographs

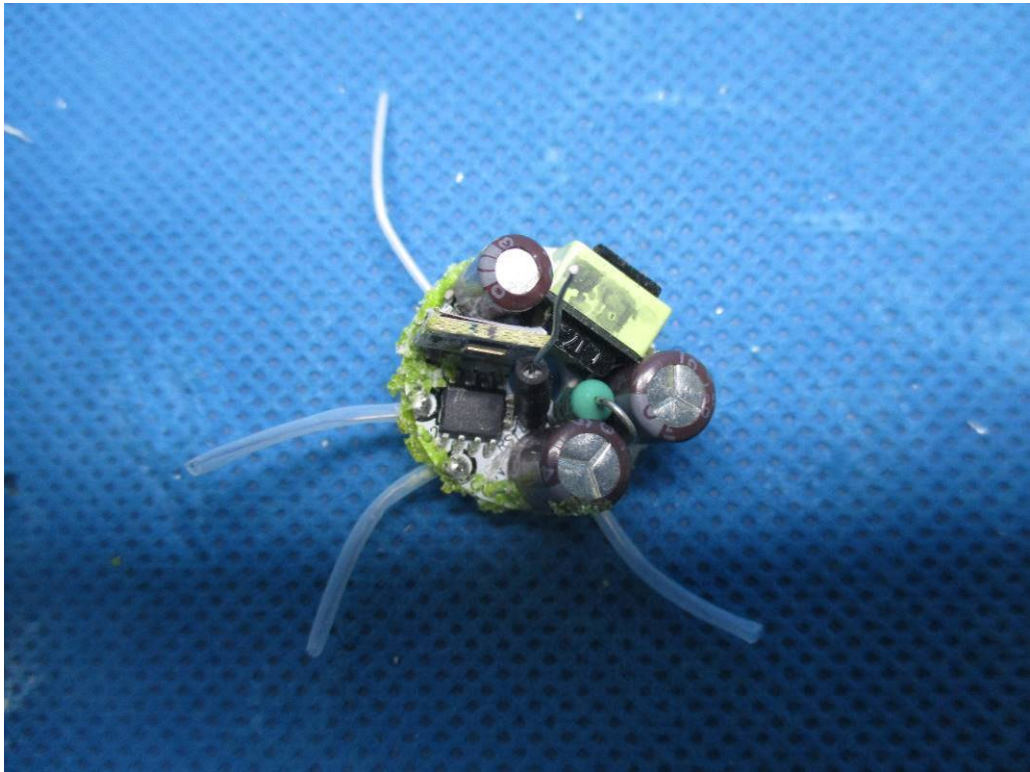


PCB7 A60 shape

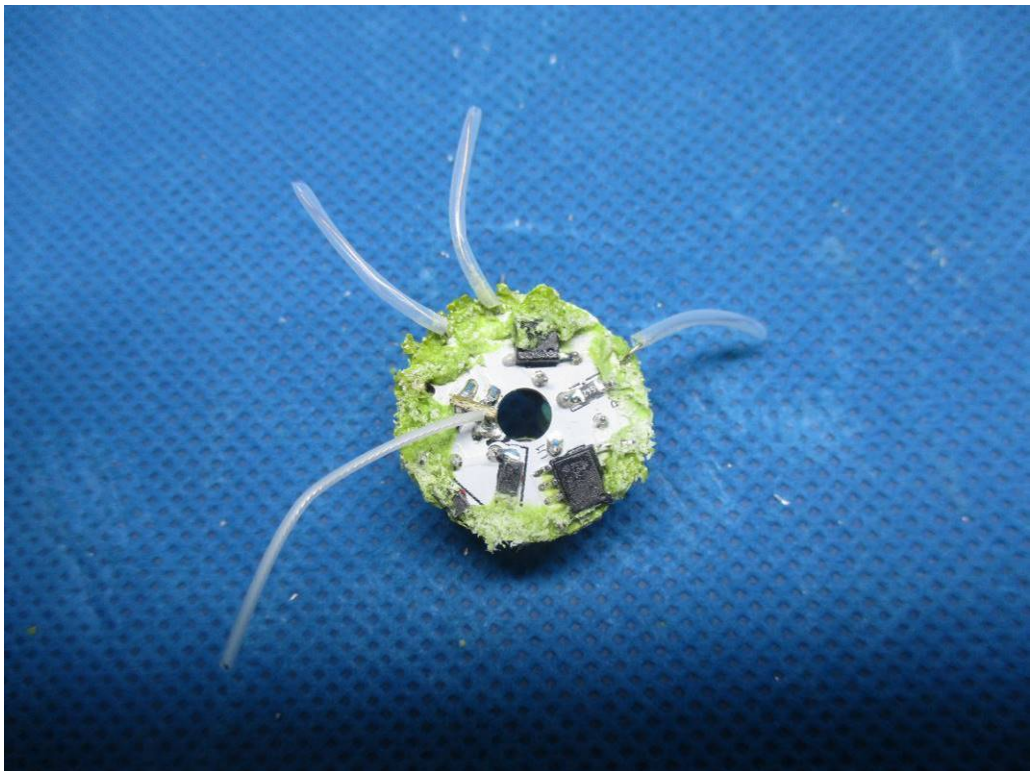


Internal view

Appendix 4: Photographs

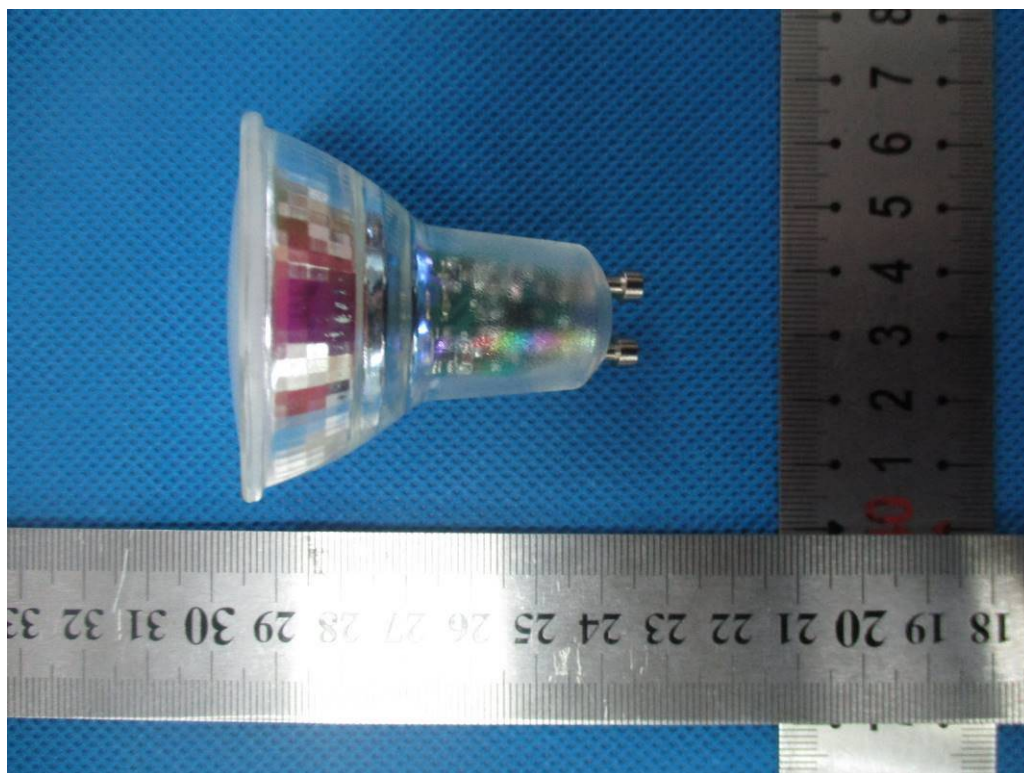


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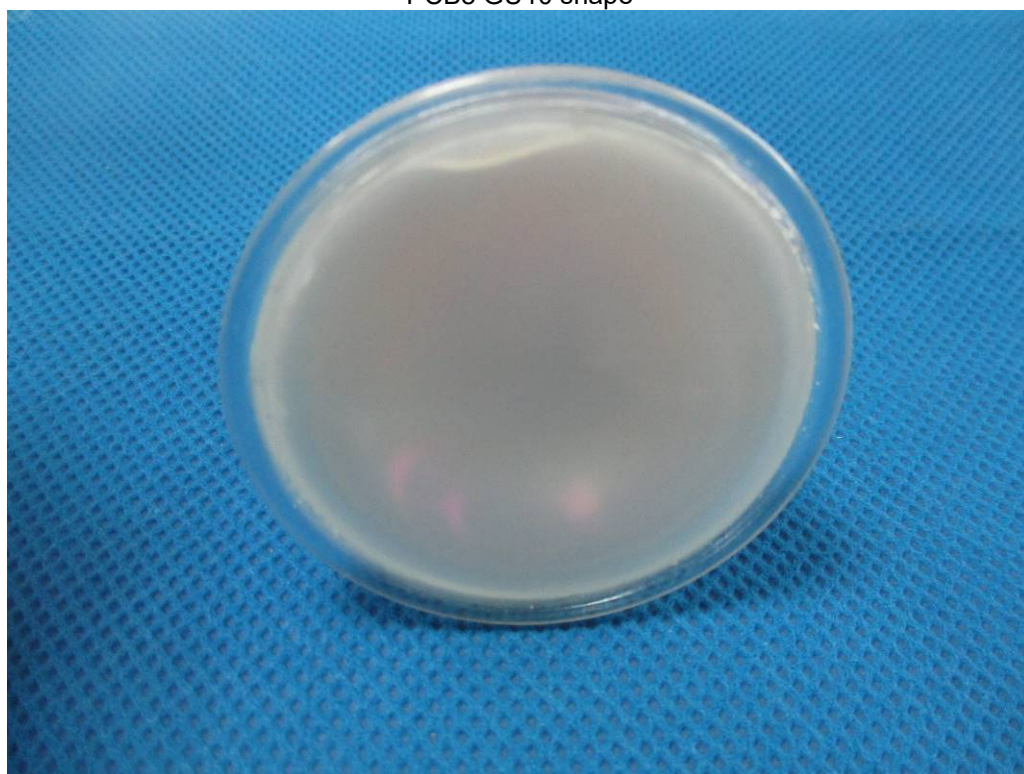


PCB

Appendix 4: Photographs

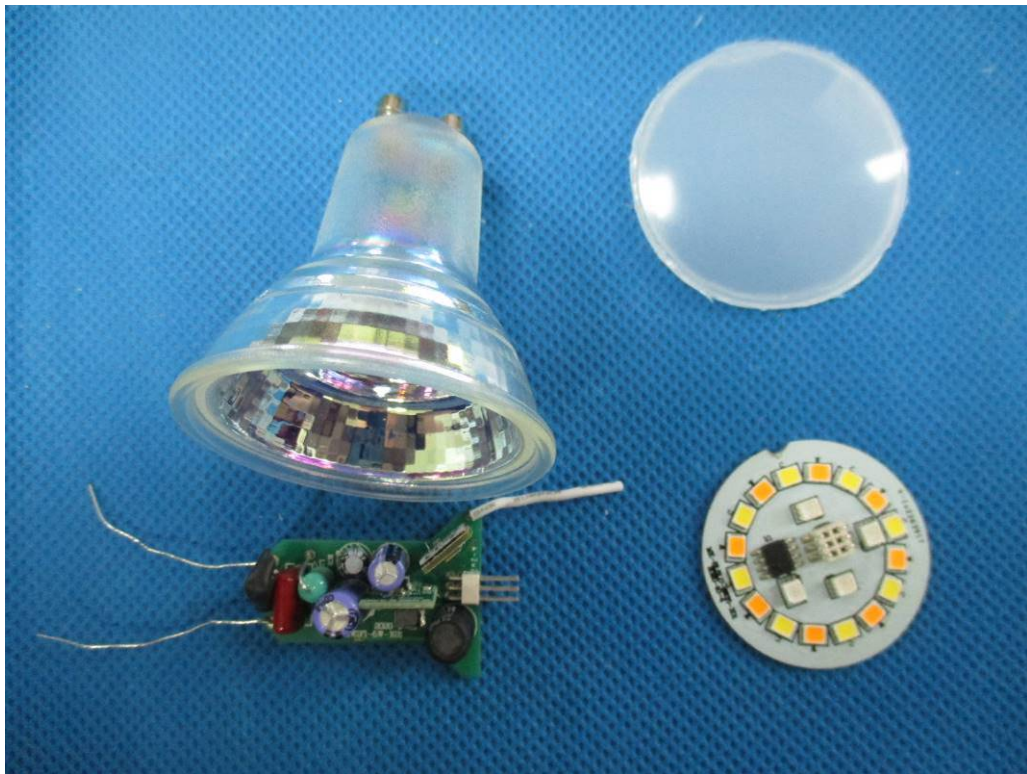


PCB8 GU10 shape

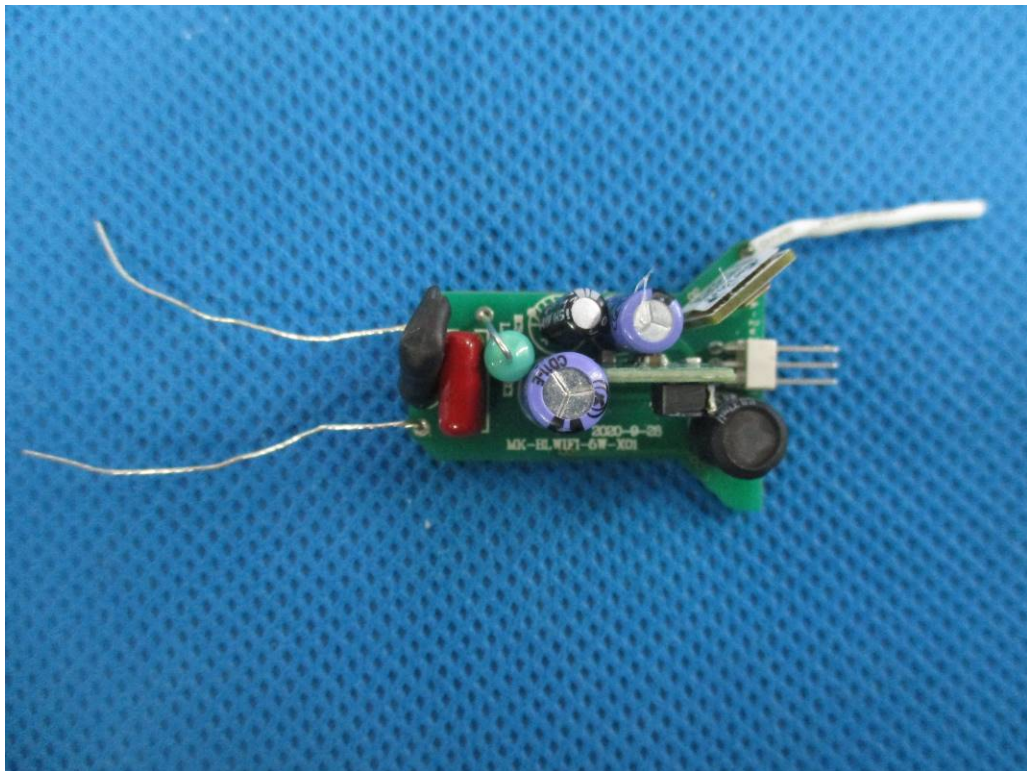


Front view

Appendix 4: Photographs

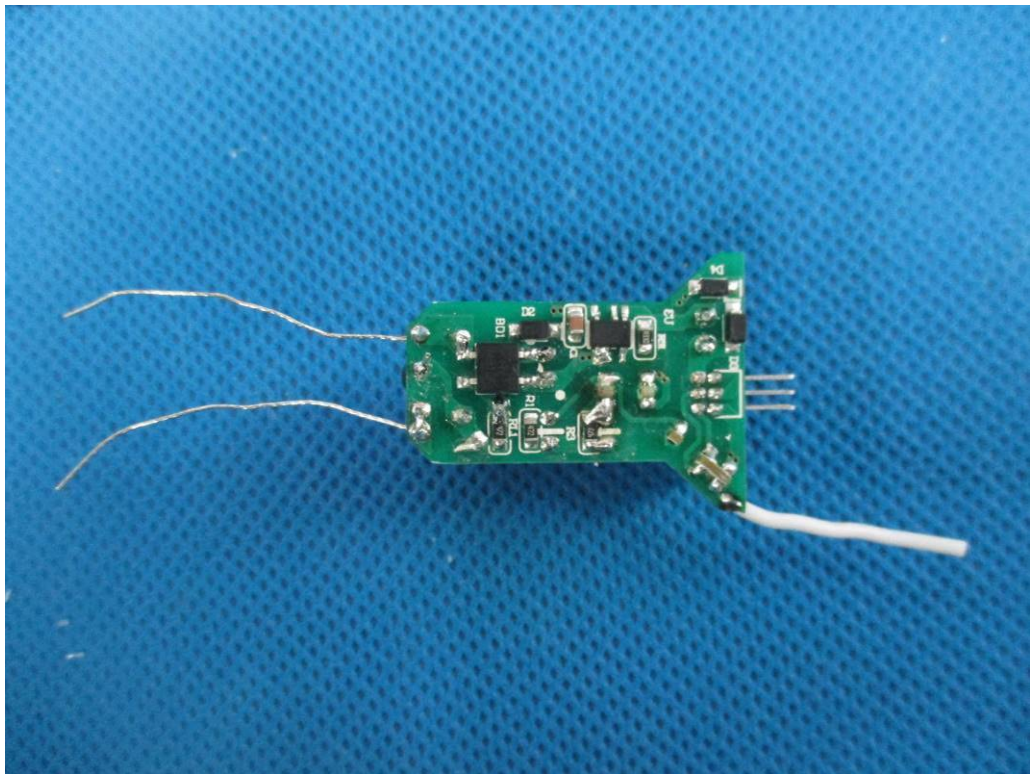


Internal view



PCB

Appendix 4: Photographs



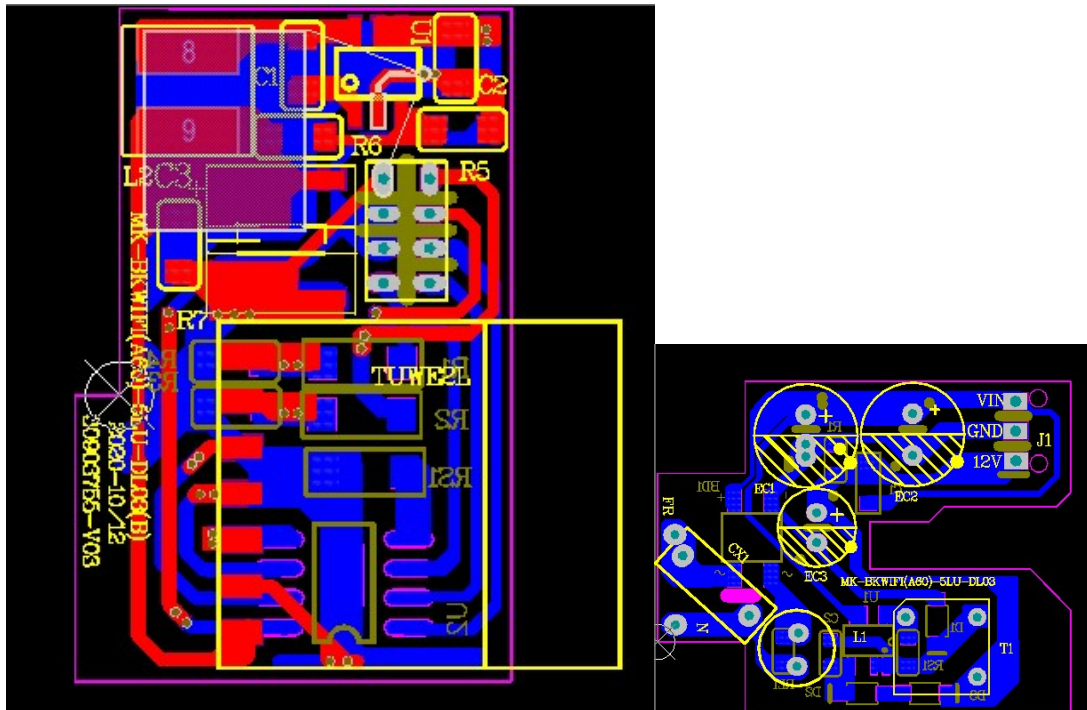
PCB



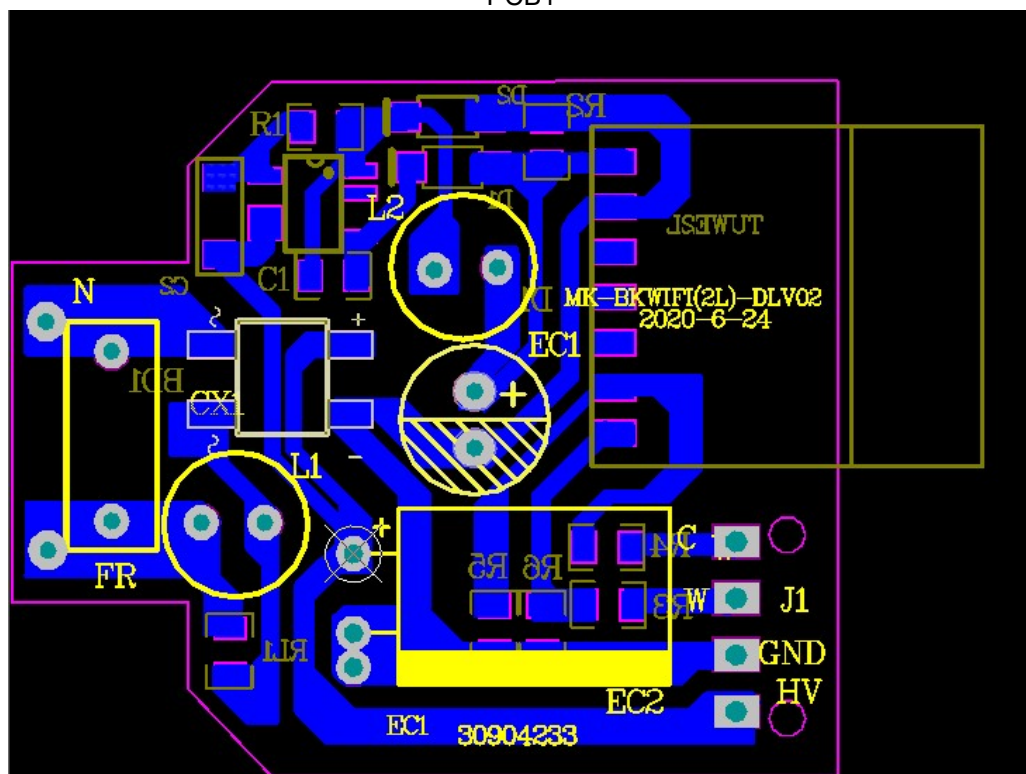
Remote controller

Appendix 4: Photographs

PCB Layout:

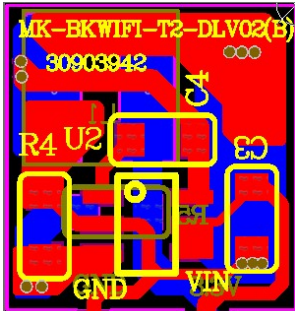


PCB1

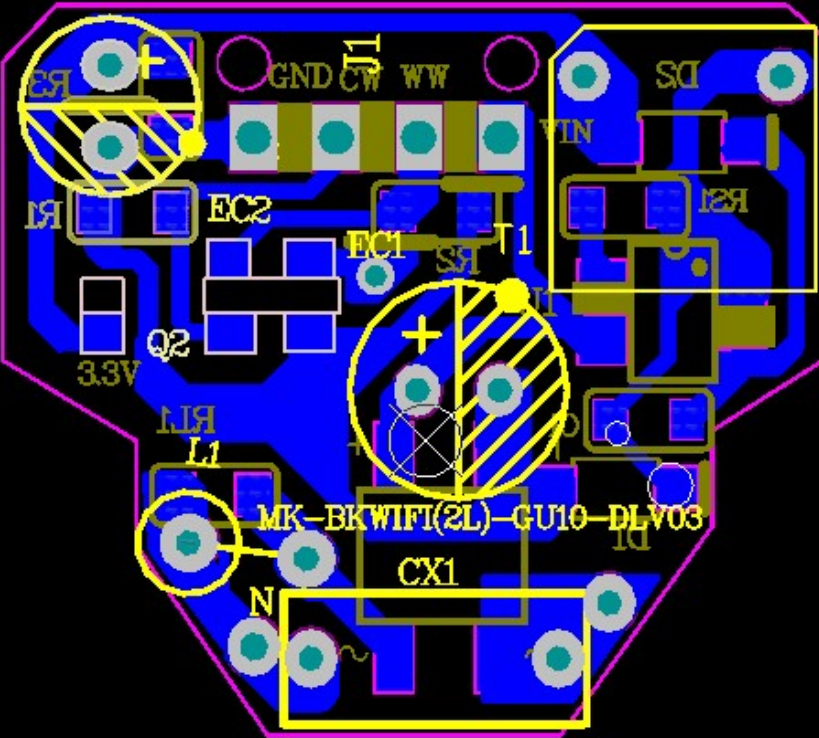


PCB2

Appendix 4: Photographs

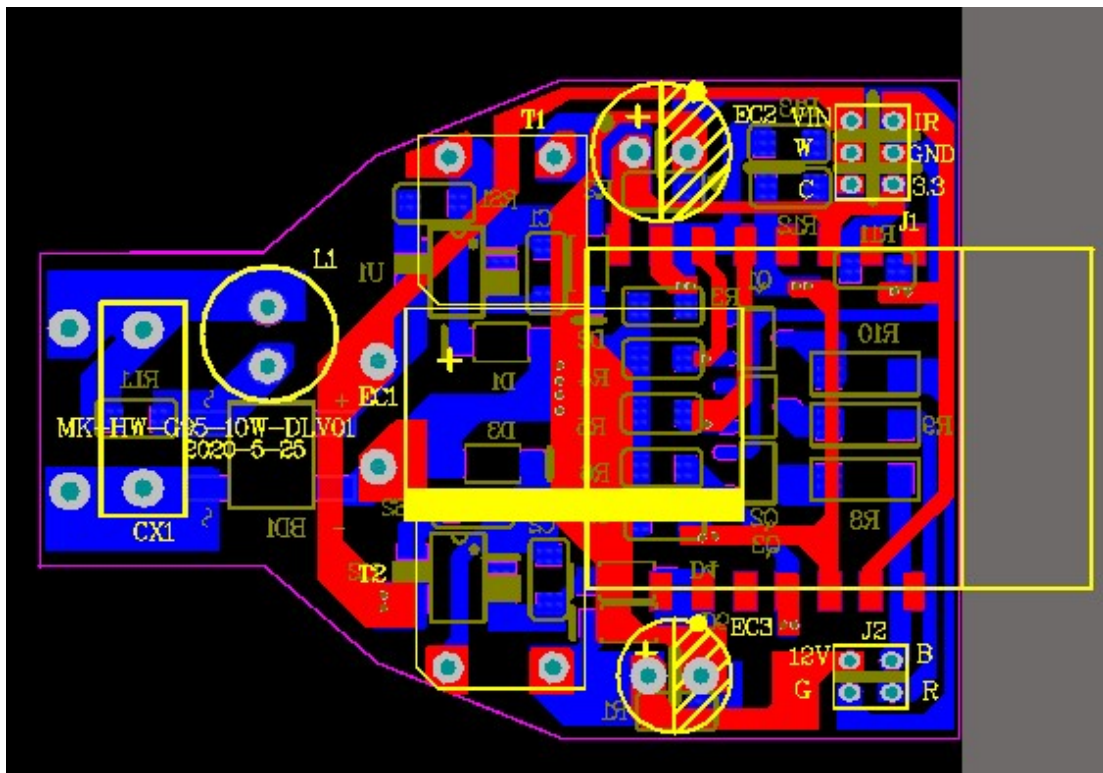


PCB3

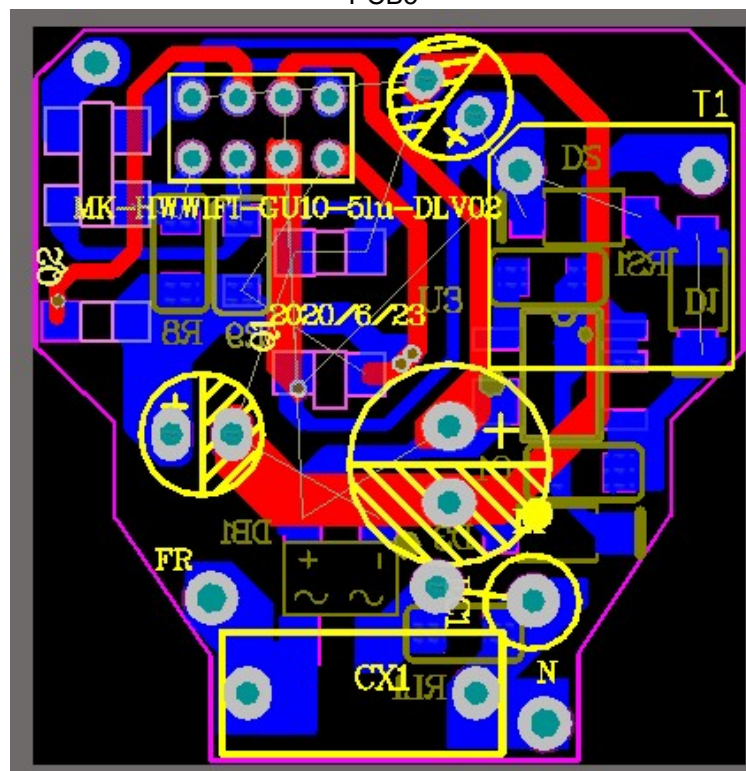


PCB4

Appendix 4: Photographs



PCB5

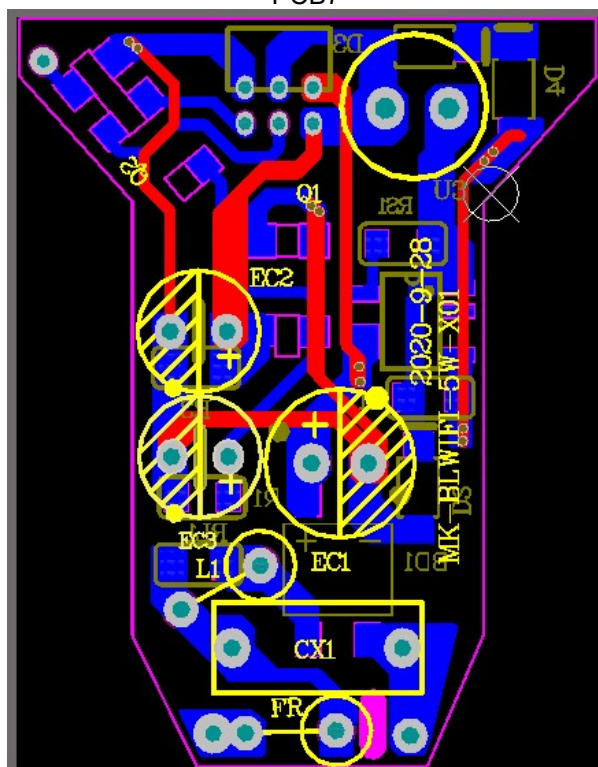


PCB6

Appendix 4: Photographs



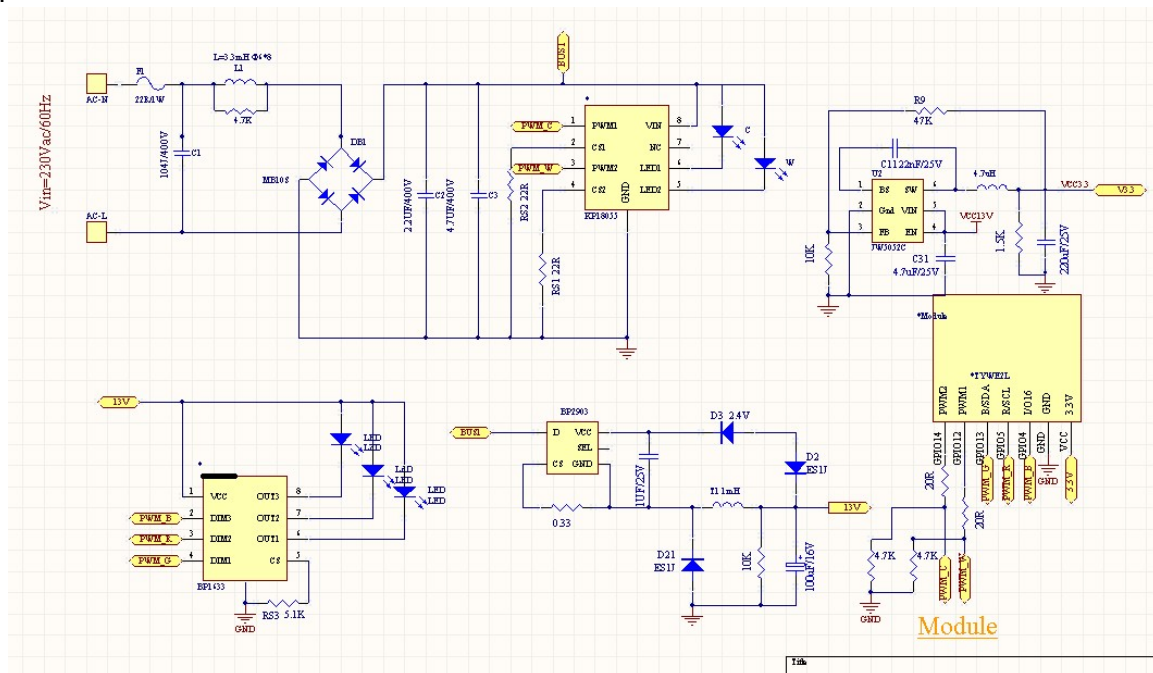
PCB7



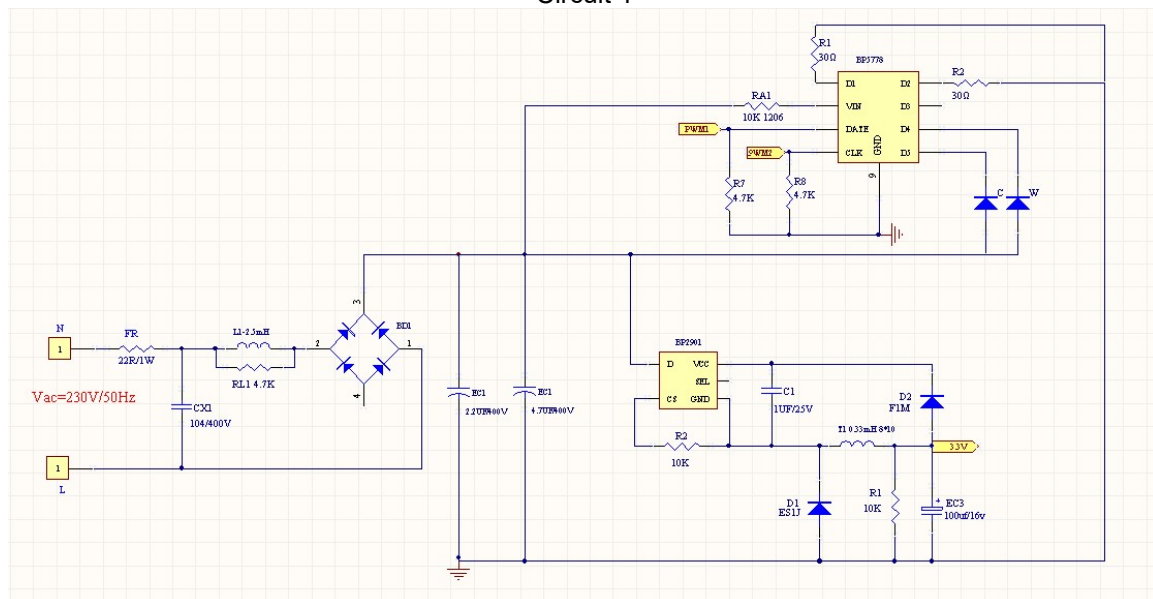
PCB8

Appendix 4: Photographs

Circuit:

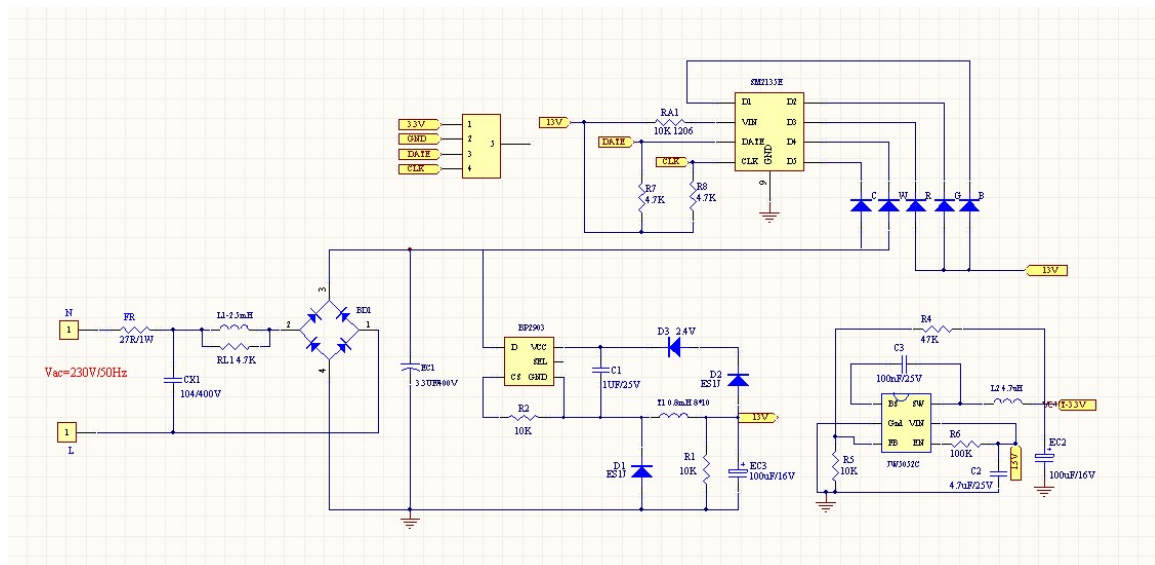


Circuit 1

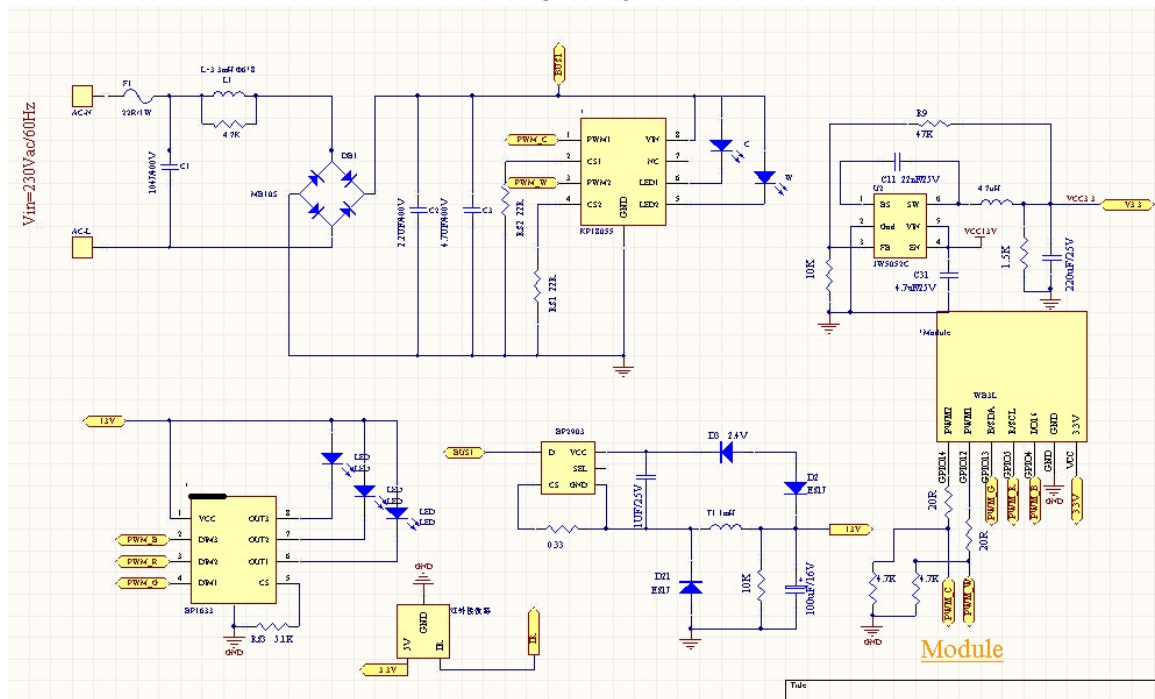


Circuit 2

Appendix 4: Photographs

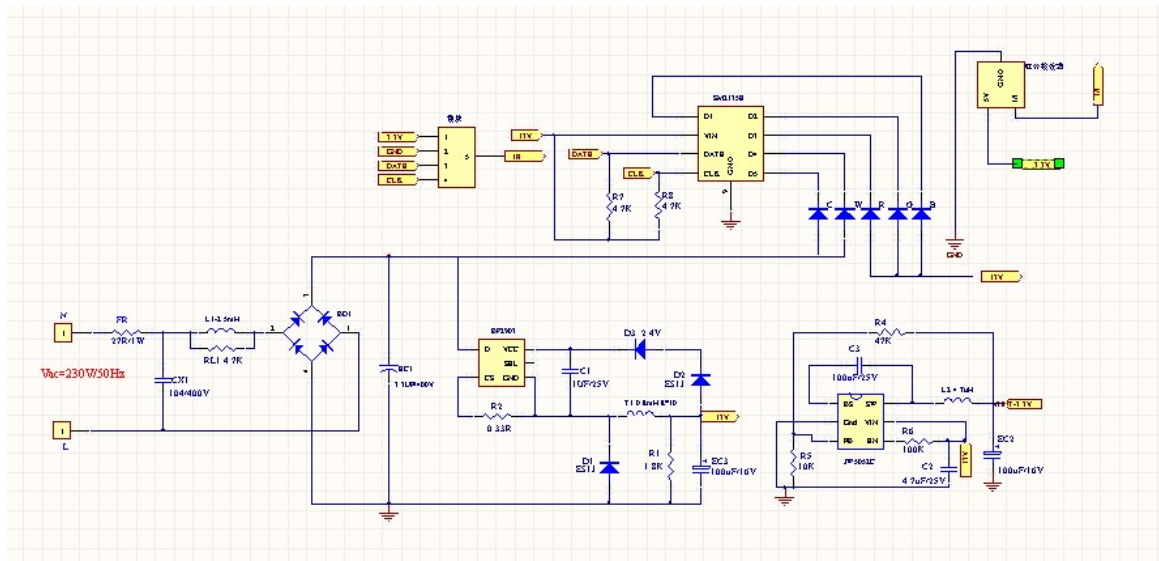


Circuit 3



Circuit 4

Appendix 4: Photographs



Circuit 5