



Test Report

Date : 2018-02-28

No. : HM17120026

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Applicant: SUNVALLEYTEK INTERNATIONAL, INC.
46724 Lakeview Blvd, Fremont, CA 94538

Manufacturer: ShenZhen NearbyExpress Technology Development
Company Limited
333 Bulong Road, Shenzhen, China 518129

Description of Sample(s): Submitted sample(s) said to be
Product: LED DESK LAMP
Brand Name: TAOTRONICS
Model Number: TT-DL036
FCC ID: 2AFDGT-TT-DL036

Date Sample(s) Received: 2017-12-12

Date Tested: 2017-12-19 to 2017-12-20

Investigation Requested: FCC Part 18

Conclusion(s): The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 18. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remark(s): ---



CHEUNG Chi, Kenneth
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
The Hong Kong Standards and Testing Centre Ltd.

The Hong Kong Standards and Testing Centre Limited
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1.0 General Details

1.1 Equipment Under Test [EUT] Description of Sample(s)

Submitted sample(s) said to be

Product:	LED DESK LAMP
Manufacturer:	ShenZhen NearbyExpress Technology Development Company Limited
Brand Name:	TAOTRONICS
Model Number:	TT-DL036
Rating:	10Vd.c. by adaptor
Declared Highest Internal Frequency:	105KHz-148KHz
The AC/DC adaptor was provided by the applicant with following details: Model no.: K36V100300U, Input: 100-240Va.c 50/60Hz 0.9A, Output: 10Vd.c. 3.0A	

1.1.1 Description of EUT Operation

The Equipment Under Test (EUT) is an LED Lamp with wireless charging function for Mobile device. Test was conducted under wireless charging mode which Samsung S8+ used as Load.

1.2 Date of Order

2017-12-12

1.3 Submitted Sample(s):

1 sample

1.4 Test Duration

2017-12-19 to 2017-12-20

1.5 Country of Origin

China

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2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 18: 2016 and MP-5: 1986 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary					
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result	
				Pass	Failed
Conducted Emissions on AC, 0.15MHz to 30MHz	FCC Part 18.307(b)	MP-5: 1986	Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emissions* 0.009kHz to 30MHz	FCC Part 18.305(b) and 18.309	MP-5: 1986	Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>
human exposure to electromagnetic fields	47 CFR PART 1, Subpart I, Section 1.1310	47 CFR PART 1, Subpart I, Section 1.1310	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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3.0 Test Results

3.1 Emission

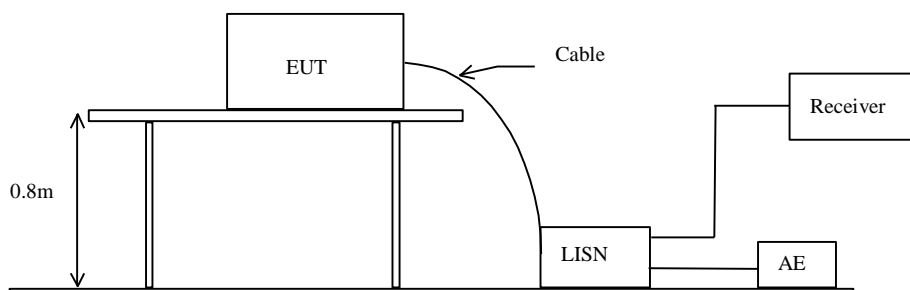
3.1.1 Conducted Emissions (0.009MHz to 30MHz)

Test Requirement: FCC Part 18
Test Method: MP-5: 1986
Test Date: 2017-12-19
Mode of Operation: Wireless charging mode

Test Method:

The test was performed in accordance with MP-5: 1986, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:





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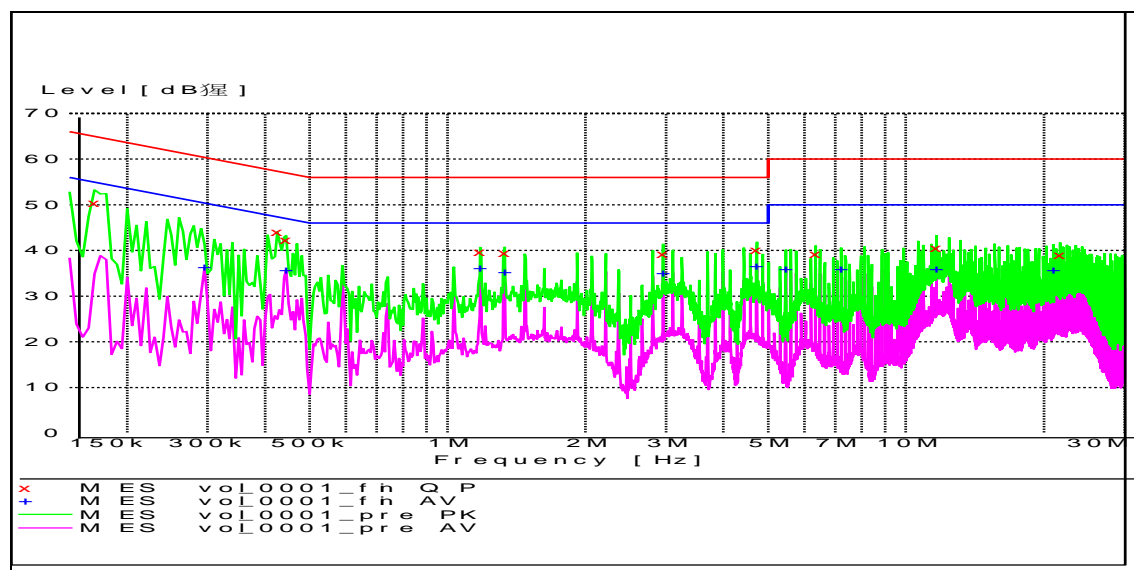
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Limit for Conducted Emissions (FCC 47 CFR Part 18.307 (a)):

Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average Limits [dBμV]
0.009-0.05	110	-
0.05-0.15	90-80	-
0.15-0.5	66-56	56-46
0.5-5	56	46
5-30	60	50

Limits for Conducted Emissions Test, please refer to limit lines in the following diagram.

Results of On mode- Live and Neutral : PASS



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Results of On mode- Live and Neutral: PASS

MEASUREMENT RESULT: "vol_0001_fin QP"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.170000	50.40	9.9	65	14.6	N	GND
0.425000	44.10	10.0	57	13.3	N	GND
0.445000	42.20	10.0	57	14.8	L1	GND
1.180000	39.60	9.9	56	16.4	L1	GND
1.330000	39.40	9.9	56	16.6	N	GND
2.955000	39.30	10.4	56	16.7	N	GND
4.725000	40.10	10.5	56	15.9	N	GND
6.350000	39.20	10.6	60	20.8	L1	GND
11.665000	40.60	10.5	60	19.4	L1	GND
21.705000	39.10	10.8	60	20.9	N	GND

MEASUREMENT RESULT: "vol_0001_fin AV"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.295000	36.30	9.9	50	14.1	L1	GND
0.445000	35.80	10.0	47	11.1	L1	GND
1.180000	36.10	9.9	46	9.9	N	GND
1.330000	35.30	9.9	46	10.7	L1	GND
2.955000	35.00	10.4	46	11.0	L1	GND
4.725000	36.70	10.5	46	9.3	N	GND
5.465000	35.90	10.6	50	14.1	L1	GND
7.235000	35.90	10.5	50	14.1	L1	GND
11.665000	35.90	10.5	50	14.1	N	GND
20.970000	35.60	10.8	50	14.4	L1	GND

Remark:

Calculated measurement uncertainty (0.15MHz – 30MHz): 3.25dB

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3.1.2 Radiated Emissions (9kHz to 30MHz)

Test Requirement: FCC Part 18
Test Method: MP-5: 1986
Test Date: 2017-12-20, 2018-02-20 to 2018-02-21

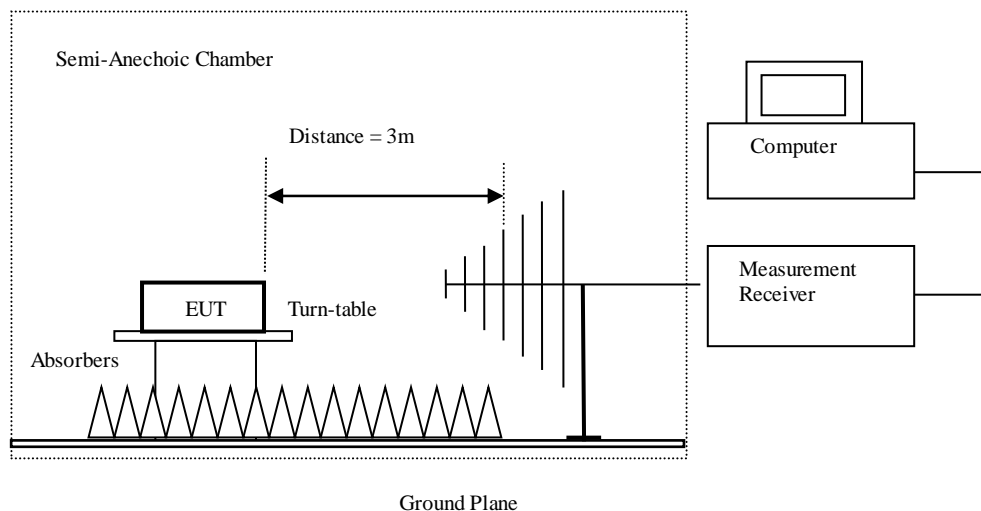
Mode of Operation: Wireless charging mode (charging condition at 10%, 50% and 90% capacity)

Test Method:

The sample was placed 0.8m above the ground plane of Semi-anechoic chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable. The emissions worst-case are shown in Test Results of the following pages.

*:
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FCC Test Firm Registration Number 723883 Designation Number HK0001

Test Setup:



- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements below 30MHz loop antenna is used, between 30MHz to 1000MHz made with Bi-log antennas, above 1000MHz horn antennas are used.

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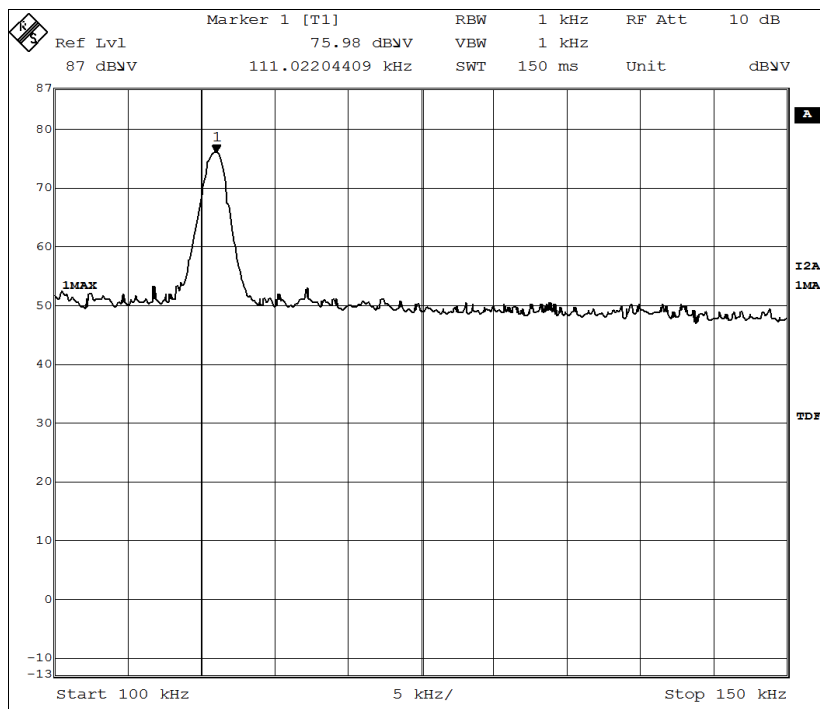
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Limits for Radiated Emissions [FCC 47 CFR 18.305 (b)]: $15\mu\text{V/m}@300\text{meter}^* = 103\text{dB}\mu\text{V/m}@3\text{m}$

Results of Wireless charging mode (charging at 10%) : PASS



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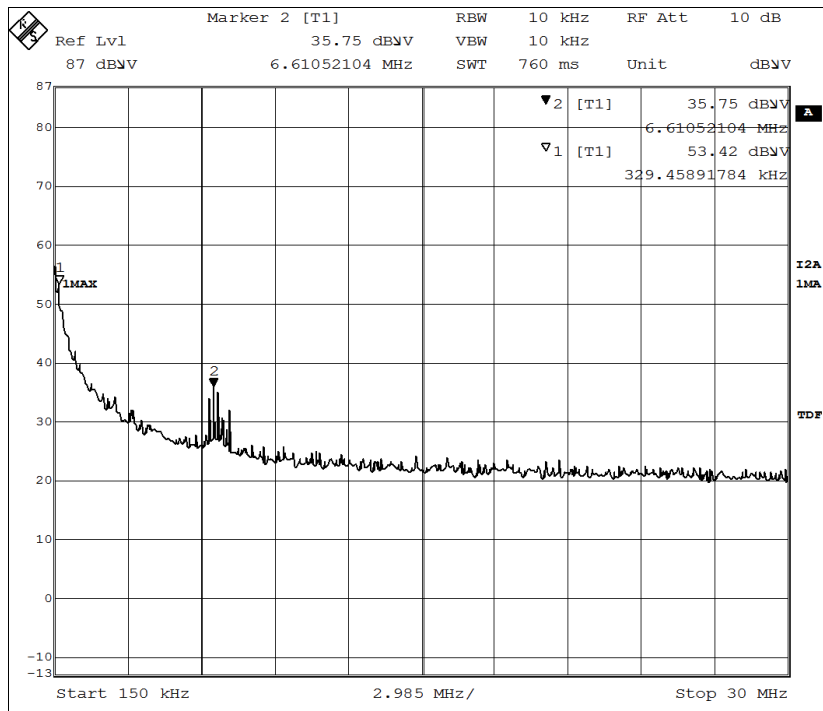
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The quasi-peak measurements were recorded as follows:-

Radiated Emissions Quasi-Peak				
Emission Frequency kHz	Level @3m dBμV/m	Limit @3m dBμV/m	Level @3m μV/m	Limit @3m μV/m
111.0	72.8	103.0	4365.2	141254
329.5	50.3	103.0	327.3	141254
6610.5	32.3	103.0	41.2	141254

Remarks:

EUT operated at non-ISM frequency which output power <500W

Margin = Limit (dBμV/m) - Level @3M (dBμV/m)

Calculated measurement uncertainty (9kHz - 30MHz): 3.7dB
(30MHz – 18GHz): 5.0dB

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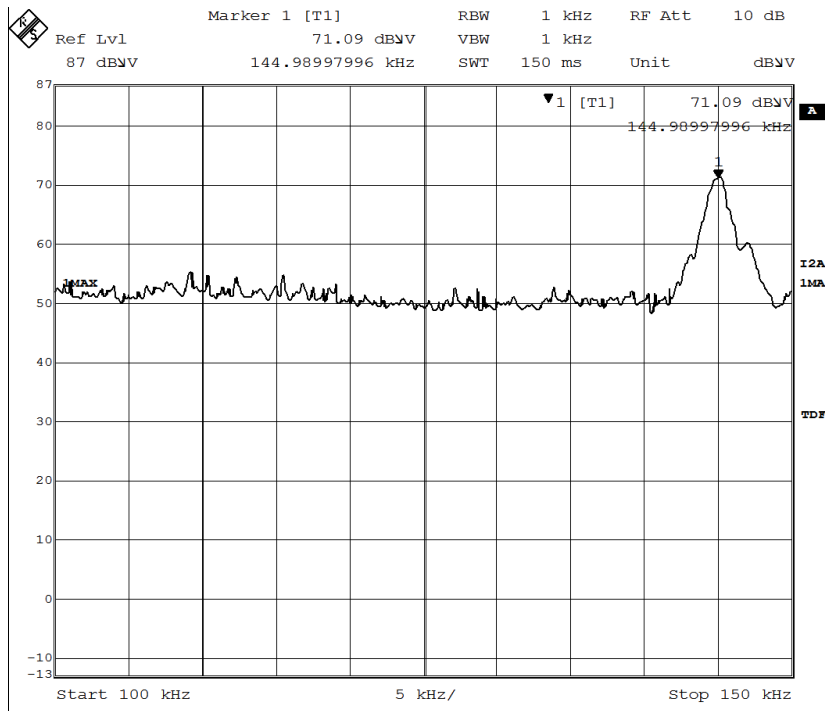


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Results of Wireless charging mode (charging at 50%) : PASS



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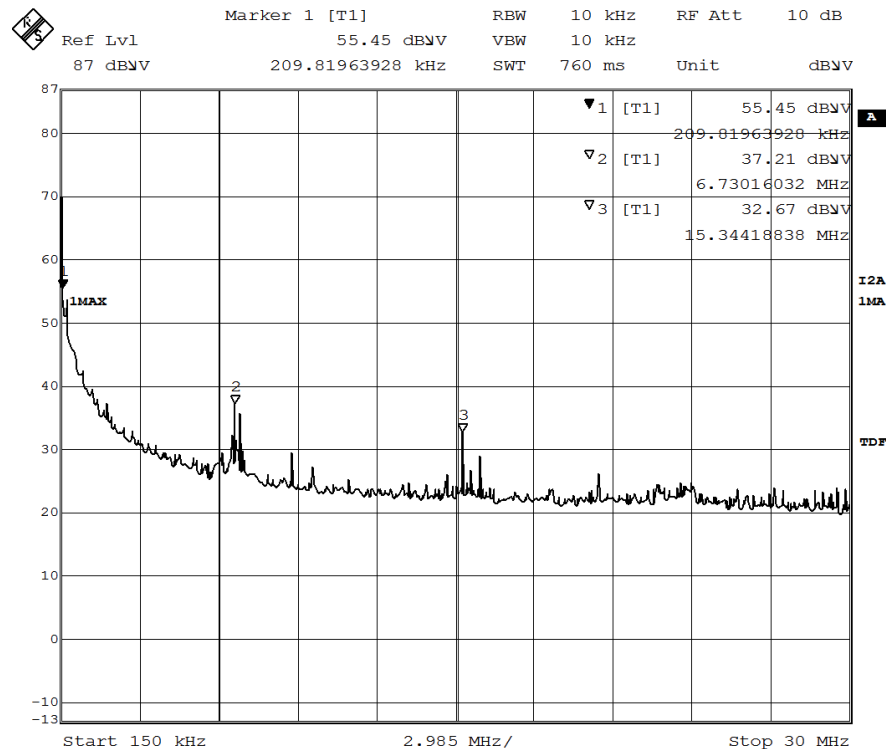
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The quasi-peak measurements were recorded as follows:-

Radiated Emissions Quasi-Peak				
Emission Frequency kHz	Level @3m dBμV/m	Limit @3m dBμV/m	Level @3m μV/m	Limit @3m μV/m
145.0	68.6	103.0	2691.5	141254
209.8	53.4	103.0	467.7	141254
6730.2	35.1	103.0	56.9	141254
15344.2	29.7	103.0	30.5	141254

Remarks:

EUT operated at non-ISM frequency which output power <500W

Margin = Limit (dBμV/m) - Level @3M (dBμV/m)

Calculated measurement uncertainty (9kHz - 30MHz): 3.7dB
(30MHz - 18GHz): 5.0dB

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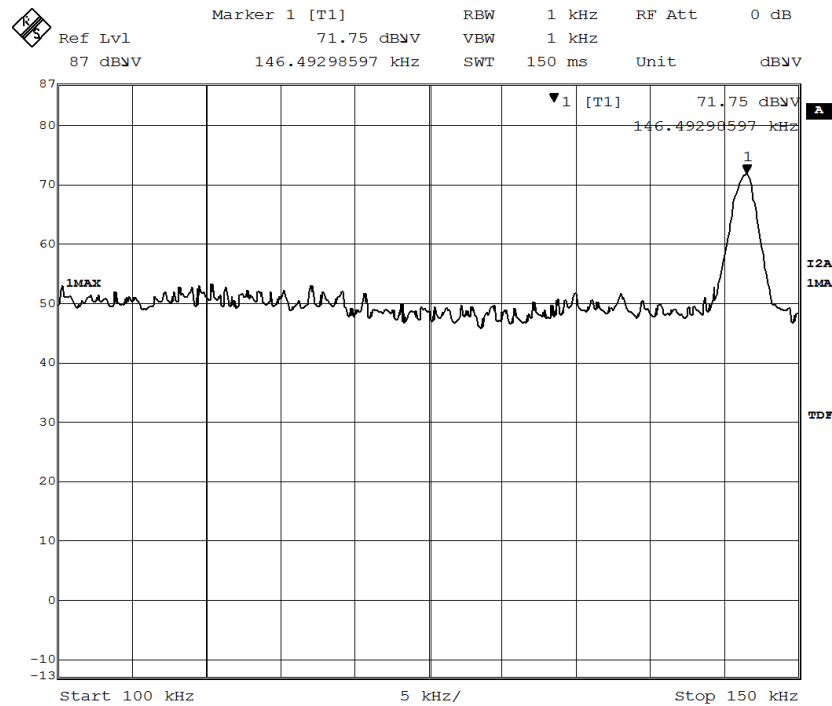


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Results of Wireless charging mode (charging at 90%) : PASS



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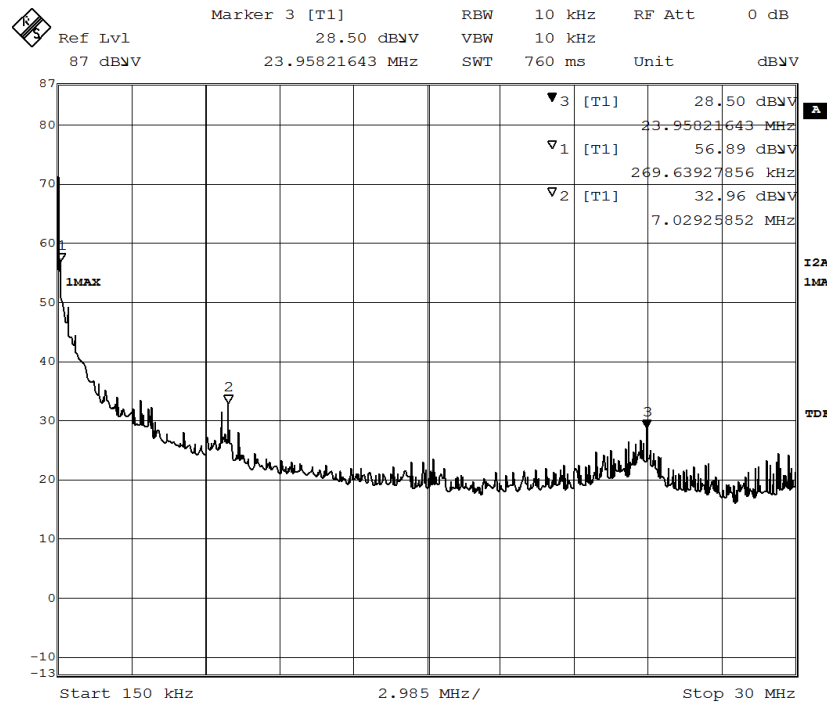
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The quasi-peak measurements were recorded as follows:-

Radiated Emissions Quasi-Peak				
Emission Frequency kHz	Level @3m dBμV/m	Limit @3m dBμV/m	Level @3m μV/m	Limit @3m μV/m
146.5	69.1	103.0	2851.0	141254
269.6	54.1	103.0	507.0	141254
7029.3	30.4	103.0	33.1	141254
23950.2	26.7	103.0	21.6	141254

Remarks:

EUT operated at non-ISM frequency which output power <500W

Margin = Limit (dBμV/m) - Level @3M (dBμV/m)

Calculated measurement uncertainty (9kHz - 30MHz): 3.7dB
 (30MHz - 18GHz): 5.0dB

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3.1.3 RF Exposure test

Test Requirement: 47 CFR PART 1, Subpart I, Section 1.1310
 Test Date: 2017-12-20 , 2018-02-21

EUT Operation:

This device has been tested the worst status of full load .
 The test used phone with follow detail:
 Model: SAMSUNG S8+

Limit:

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 *=Plane-wave equivalent power density RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).				

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Test Result: PASS

Electric Field Emissions
Charging at Battery Capacity = 10 %

Side	Separation Distance(m)	E-field(V/m)	E-field(V/m)Limit	E-field(V/m)Limit 30%
Side 1	0.1	0.043	614	184.2
Side 2	0.1	0.029	614	184.2
Side 3	0.1	0.021	614	184.2
Side 4	0.1	0.033	614	184.2
Side 5	0.1	0.049	614	184.2
Side 6	0.1	0.015	614	184.2

Charging at Battery Capacity = 50 %

Side	Separation Distance(m)	E-field(V/m)	E-field(V/m)Limit	E-field(V/m)Limit 30%
Side 1	0.1	0.045	614	184.2
Side 2	0.1	0.025	614	184.2
Side 3	0.1	0.022	614	184.2
Side 4	0.1	0.037	614	184.2
Side 5	0.1	0.047	614	184.2
Side 6	0.1	0.019	614	184.2

Charging at Battery Capacity = 90 %

Side	Separation Distance(m)	E-field(V/m)	E-field(V/m)Limit	E-field(V/m)Limit 30%
Side 1	0.1	0.041	614	184.2
Side 2	0.1	0.024	614	184.2
Side 3	0.1	0.023	614	184.2
Side 4	0.1	0.032	614	184.2
Side 5	0.1	0.058	614	184.2
Side 6	0.1	0.018	614	184.2

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Magnetic Field Emissions

Charging at Battery Capacity = 10 %

Side	Separation Distance(m)	H-field(A/m)	H-field(A/m)Limit	H-field(A/m)Limit 30%
Side 1	0.1	0.00013	1.63	0.489
Side 2	0.1	0.00007	1.63	0.489
Side 3	0.1	0.00008	1.63	0.489
Side 4	0.1	0.00007	1.63	0.489
Side 5	0.1	0.00025	1.63	0.489
Side 6	0.1	0.00007	1.63	0.489

Charging at Battery Capacity = 50 %

Side	Separation Distance(m)	H-field(A/m)	H-field(A/m)Limit	H-field(A/m)Limit 30%
Side 1	0.1	0.00014	1.63	0.489
Side 2	0.1	0.00008	1.63	0.489
Side 3	0.1	0.00009	1.63	0.489
Side 4	0.1	0.00007	1.63	0.489
Side 5	0.1	0.00023	1.63	0.489
Side 6	0.1	0.00008	1.63	0.489

Charging at Battery Capacity = 90 %

Side	Separation Distance(m)	H-field(A/m)	H-field(A/m)Limit	H-field(A/m)Limit 30%
Side 1	0.1	0.00014	1.63	0.489
Side 2	0.1	0.00008	1.63	0.489
Side 3	0.1	0.00007	1.63	0.489
Side 4	0.1	0.00010	1.63	0.489
Side 5	0.1	0.00024	1.63	0.489
Side 6	0.1	0.00007	1.63	0.489

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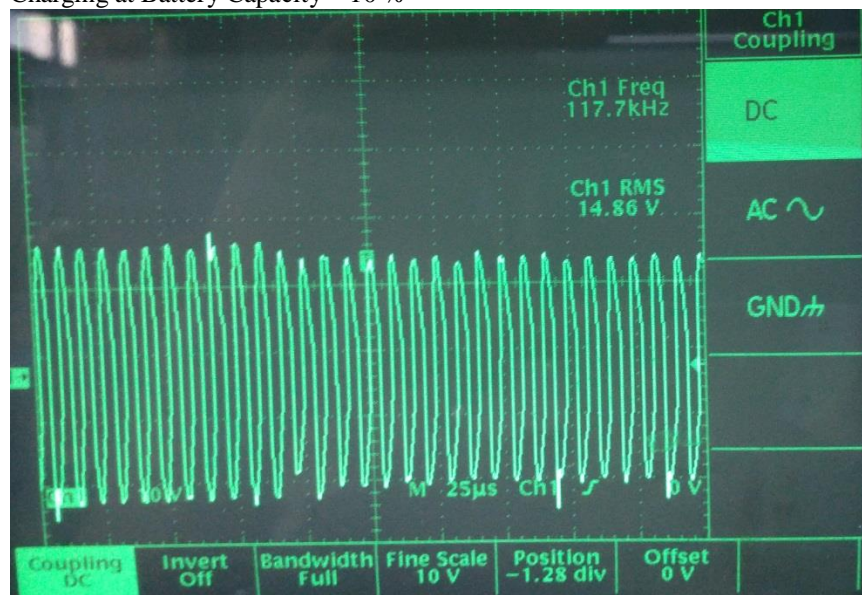
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Conducted Power Measurement

Battery Capacity	Frequency (kHz)	Voltage (V)	Current (A)	Power (W)
10%	117.7	14.86	1.23	18.28
50%	125.1	15.27	1.31	20.00
90%	134.4	14.92	1.27	18.95

Charging at Battery Capacity = 10 %



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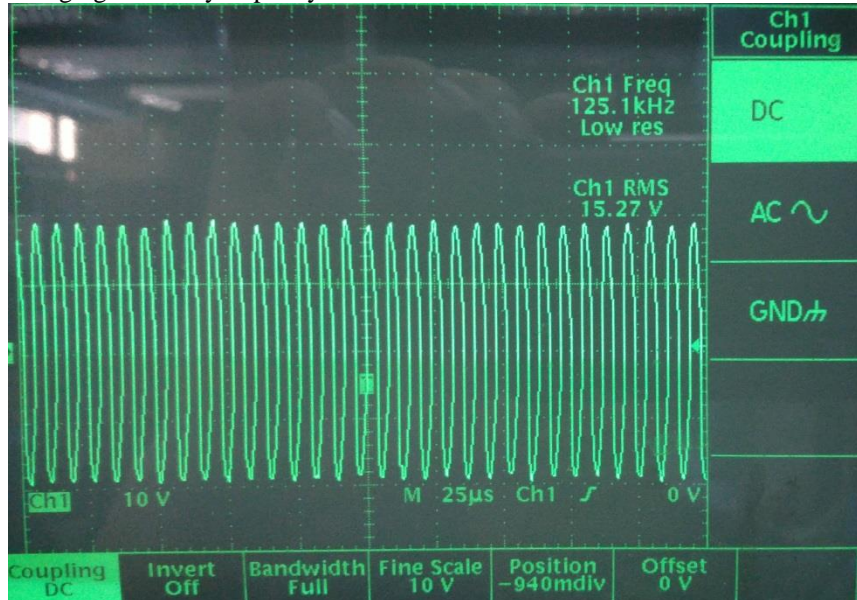
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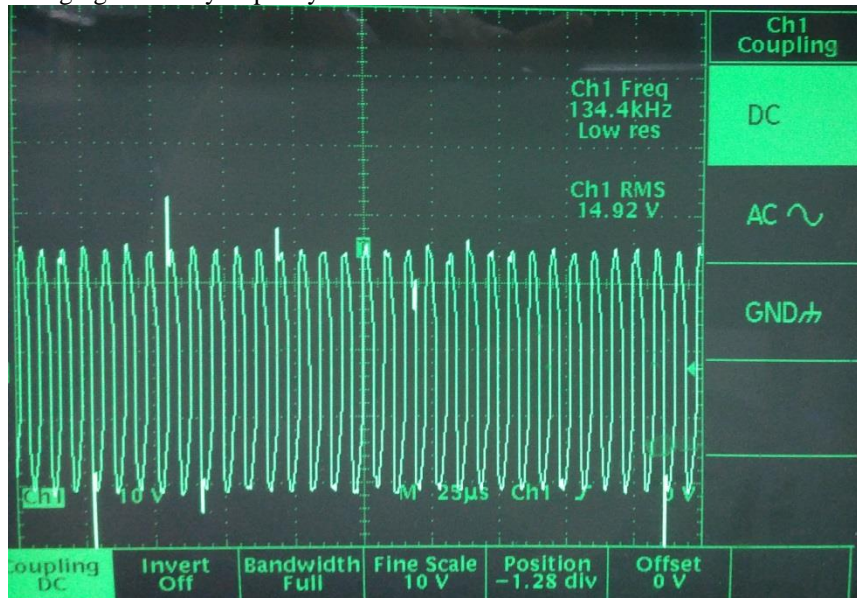
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Charging at Battery Capacity = 50 %



Charging at Battery Capacity = 90 %



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Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDevice CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM217	ELECTRIC POWERED TURN TABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-LINDGREN	FACT-3	--	2017/04/24	2018/04/24
EM356	ANTENNA POSITIONING TOWER	ETS-LINDGREN	2171B	00150346	N/A	N/A
EM354	BICONILOG ANTENNA	ETS-LINDGREN	3143B	00142073	2016/02/29	2018/02/29
EM229	EMI TEST RECEIVER	R&S	ESIB40	100248	2017/06/01	2018/06/01
EM353	LOOP ANTENNA	ETS_LINDGREN	6502	00206533	2016/03/16	2018/03/16

Line Conducted

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM119	LISN	R & S	ESH3-Z5	0831.5518.5 2	2017/11/29	2018/11/29
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	2017/06/01	2018/06/01
EM179	IMPULSE LIMITER	ROHDE & SCHWARZ	ESH3-Z2	357- 8810.52/54	2017/01/11	2018/01/11
EM154	SHIELDING ROOM	SIEMENS MATSUSHITA COMPONENTS	N/A	803-740- 057-99A	2017/02/02	2022/02/02
N/A	MEASUREMENT AND EVALUATION SOFTWARE	ROHDE & SCHWARZ	ESIB-K1	V1.20	N/A	N/A

Conducted Power Measurement

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM050	MULTIMETER	FLUKE	77	43851414	2017/03/13	2018/03/13
EM130	OSCILLOSCOPE	TEKTRONIX	TDS 380	B014459	2017/04/13	2019/04/13

Remark:-

N/A Not Applicable or Not Available

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Appendix B

Photograph(s) of EUT

Front View of the product



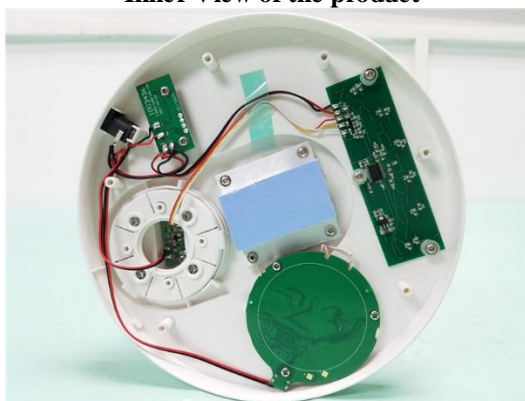
Back View of the product



Bottom View of the product



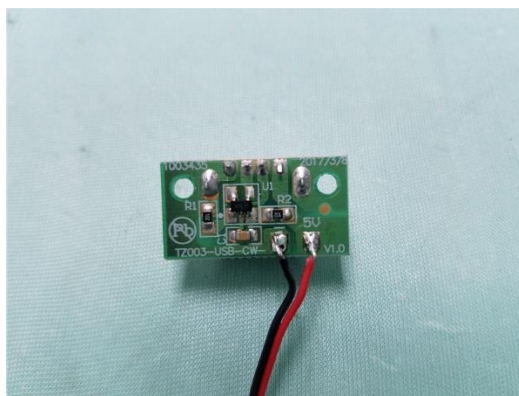
Inner View of the product



Inner Circuit Front View



Inner Circuit Back View



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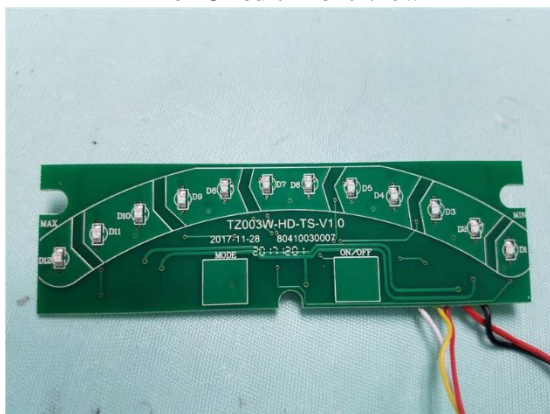
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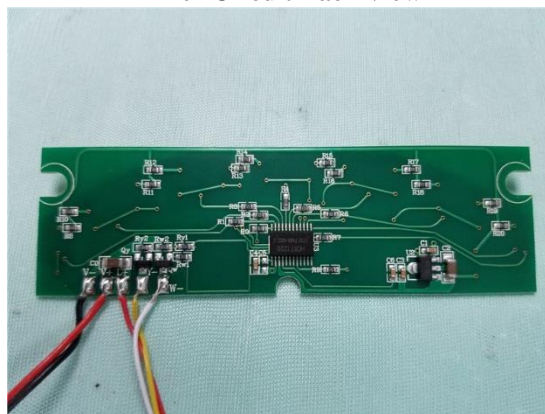
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Photograph(s) of EUT

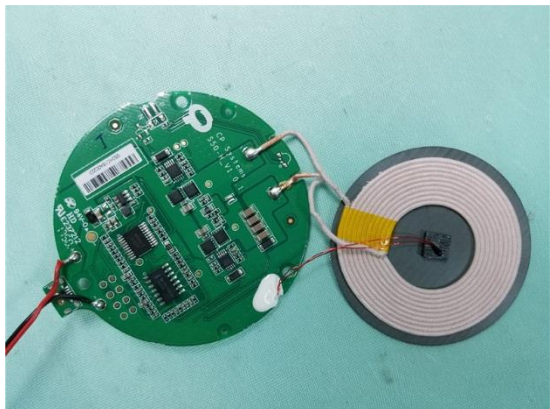
Inner Circuit Front View



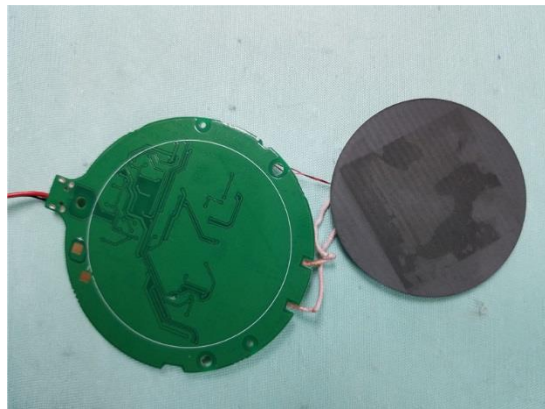
Inner Circuit Back View



Inner Circuit Front View



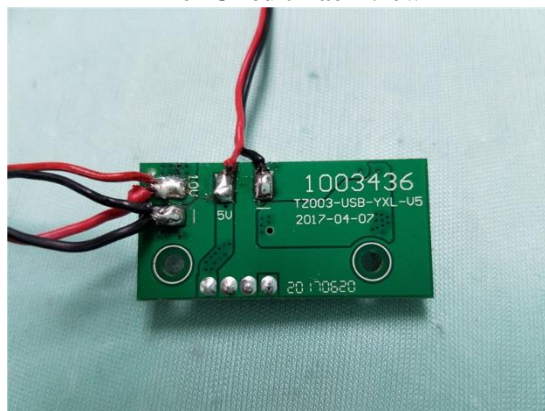
Inner Circuit Back View



Inner Circuit Front View



Inner Circuit Back View



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Photograph(s) of EUT

Measurement of Radiated Emission Test Set Up



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Measurement of Conducted Power Measurement Test Set Up



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Photograph(s) of EUT

Measurement of Conducted Emission Test Set Up



******* End of Test Report *******

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