TEST REPORT N° : ASCV-19AU3120LTSZP-B

EMC TEST REPORT

To :	[redacted]	Fax:	–
Attn:		Email:	–
Address:	[redacted]		
Cc :	–	Fax/Email	–
Attn:	–		
This document includes : 25 pages		Test date:	Nov., 12 to 29, 2018

FACTORY NAME :	Same as applicant
ADDRESS:	Same as applicant
PRODUCT:	LED Tri-proof Light
TYPE REFERENCE :	Refer to clause 3.1 of this report
RATED VOLTAGE :	Refer to clause 3.1 of this report
RATED INPUT POWER:	Refer to clause 3.1 of this report
PROTECTION CLASS :	I
TESTS REALISED :	IT-L TF-5F-60W

STANDARDS USED(DATE):	EN 55015:2013+A 1:2015 EN 61547:2009 EN 61000-3-2:2014 EN 61000-3-3:2013
CLAUSES EXAMINED :	All Clauses Relevant

All the tests done in this report are subcontracted to Zhongshan ENTRY-EXIT INSPECTION AND QUARANTINE BUREAU.

CONCLUSION :	The samples do satisfy the clauses examined .
Test done by, **Project Manager** Name: Jack DAI Date : Sept., 19, 2019	**Approved by,** **Project Manager** ◆ Name: Eddie HU Date : Sept., 19, 2019

1 TESTING PROGRAM

The tests have been carried out according to the requirements of the following standards:

Emission standard EN 55015:2013+A1:2015

- Measurement of the continuous conducted emission levels.
- Measurement of the radiated emission levels.

Immunity standard EN 61547:2009

- Immunity to electrostatic discharges - publication IEC 61000-4-2.
- Immunity to radiated radio-frequency electromagnetic field with amplitude modulation - publication IEC 61000-4-3.
- Immunity to fast transients/bursts - publication IEC 61000-4-4.
- Immunity to surges - publication IEC 61000-4-5.
- Immunity to conducted disturbances induced by radio-frequency fields - publication IEC 61000-4-6.
- Immunity to voltage dips -publication IEC 61000-4-11.
- Immunity to voltage interruptions - publication IEC 61000-4-11.

Emission standard EN 61000-3-2:2014

- Measurement of the harmonic currents.

Emission standard EN 61000-3-3:2013

- Measurement of the voltage fluctuations.

Special Comment: Refer to clause 3.1 of this test report for more information.

2 HISTORY OF FAILURE

None.

3 EQUIPMENT CHARACTERISTICS

3.1 Model list

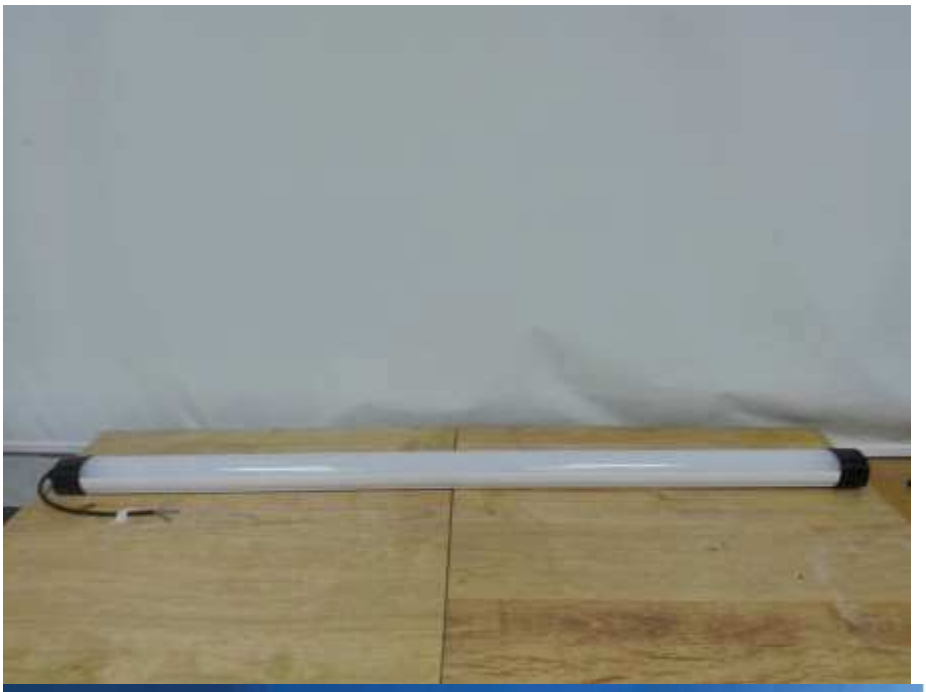
No	Model	Rated Input	Rated Power	Remark
1.	IT-LTF-20W	AC 180-277V, 50/60Hz	20W	
2.	IT-LTF-4F-40W		40W	
3.	IT-LTF-5F-50W		50W	
4.	IT-LTF-5F-60W		60W	
5.	IT-L9-2F-20W		20W	
6.	IT-L9-4F-40W		40W	
7.	IT-L9-5F-50W		50W	
8.	IT-L9-5F-60W		60W	

Other aspects:

The manufacture declare all the model are identical to the basic model IT-LTF-5F-60W, only the difference is appearance.

1. Only the supply voltage range of AC 220-240V, voltage of general public power supply in EU countries, are considered in this test report. But still it is suggested to test also the 100V so that the customer can use the report in other counties.

3.2 The photos of the EUT



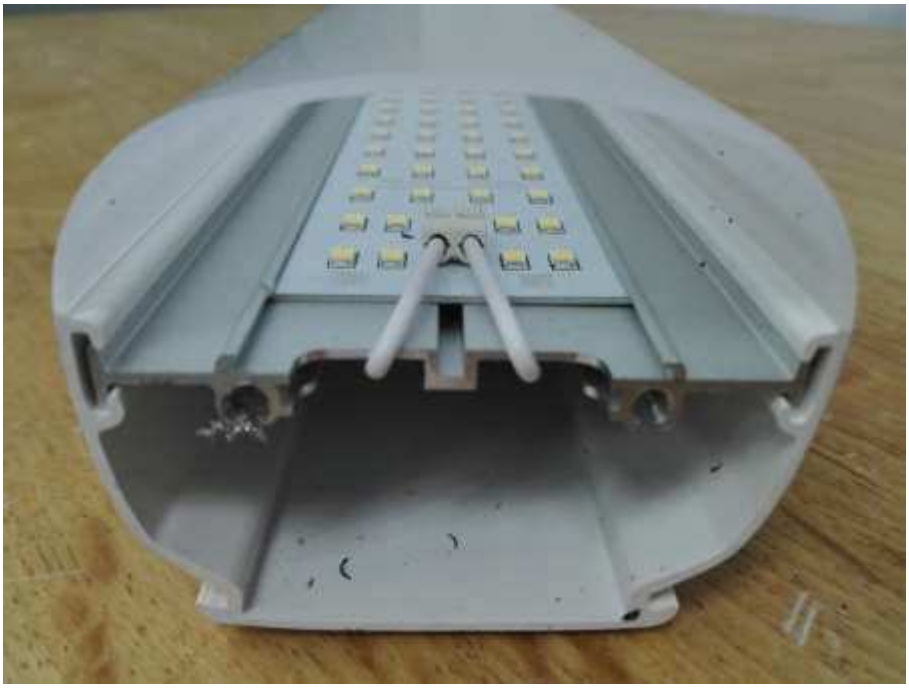
East Install LED Tri-proof Light L8

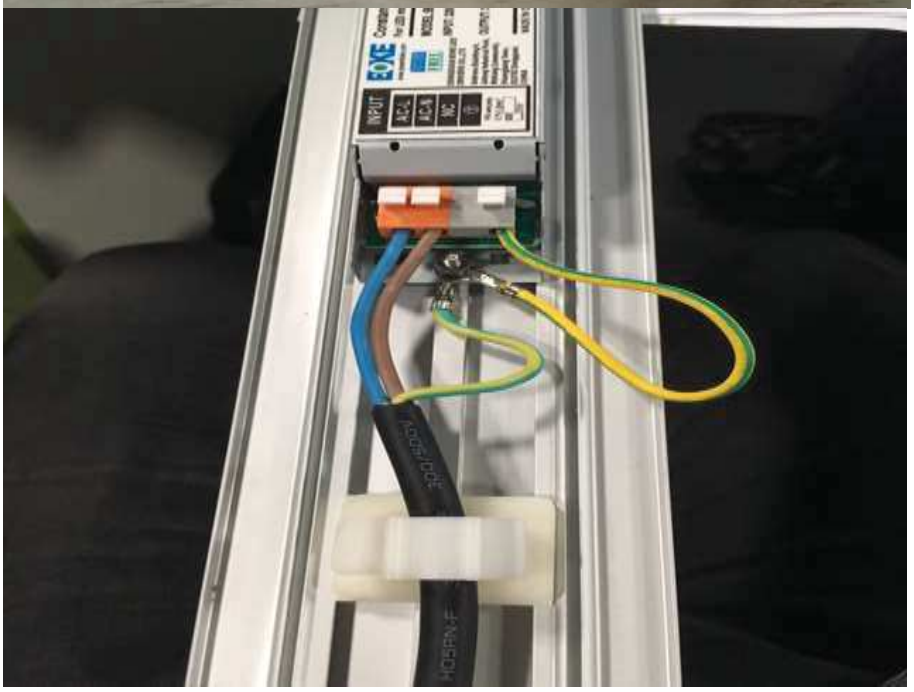
Model: IT-LTF-5F-60W
Input Voltage: AC220-240V
Dimension: 1500mm
Power: 60W
CCT: 5000K
CRI: >80
Beam Angle: 120°
IP Grade: IP65
Date: 201909

INNO-TECH
ideas for lighting

CE

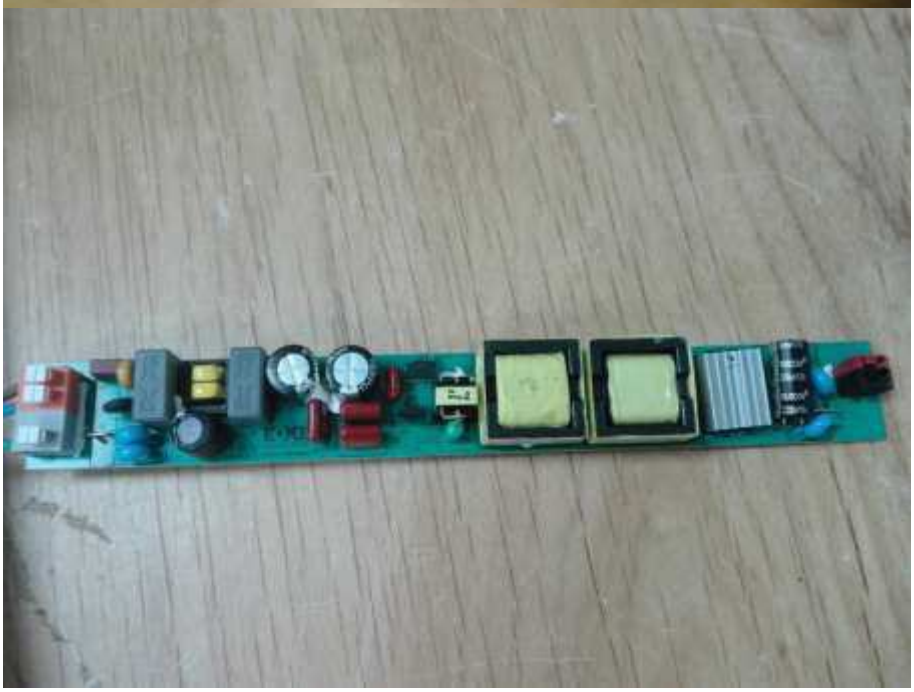
RoHS

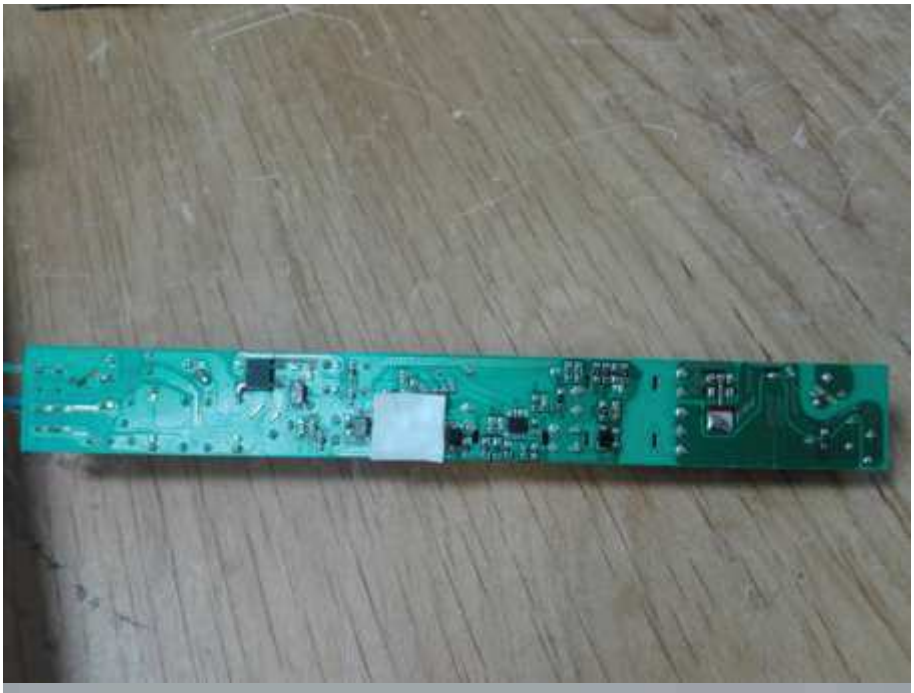



INPUT
AC/L
AC/N
NC


INPUT
E•XE
Constant Current LED Driver
SELV RoHS
OUTPUT
LED+
LED-


EOKE
www.powerboke.com
DONGGUAN BOKE LED DRIVERS CO.,LTD
Address:Building H, Julong Industrial Park, Meitang Community, Huangjiang Town,523763 Dongguan,CHINA
MADE IN CHINA
Constant Current LED Driver
For LED modules use only
MODEL:BK-CHL050-1250
INPUT
Un: 220-240V~
In : 0.4A Max.
Pn: 58W
Fn: 50-60Hz
λ : 0.95
OUTPUT
Uont: 30-42VDC
Iont : 1.25A
Pont: 52.5W Max.
Max.output voltage:63V






TB-LS-12C16B-216P-A
E353472 94V-0

4 OPERATING CONDITIONS

The apparatus was placed in a shielded room, full or semi anechoic chamber, and was powered with an alternative current source through filters mounted on the shielded room wall. The apparatus was worked continuously.

Ambient conditions :	Temperature	:	22 °C
	Relative humidity	:	53 %
	Atmospheric pressure	:	101kPa

5 PERFORMANCE CRITERIA

Criterion A : During the test no change of the luminous intensity shall be observed, if any, shall operate during the test as intended.

Criterion B : During the test the luminous intensity may change to any value. After the test the luminous intensity shall be restored to its initial value within 1 min.

Criterion C : During and after the test any change of the luminous intensity is allowed and the lamp may be extinguished. After the test, within 30 min, all functions shall return to normal if necessary by temporary interruption of the mains supply.

6 TEST RESULTS

6.1 EMISSION STANDARD EN 55015:2013+A1:2015

Article	TEST	TEST SPECIFICATION	RESULTS			
			P	F	NA	Rem
4.3	**Disturbance Voltage**	Operating conditions : according to the article 6 Port(s) :				
4.3.1	Mains terminals Frequency range: 0,009 to 30 MHz	• AC mains port Diagram(s) No. <1>	[X]	[ ]	[ ]	[ ]
4.3.2	Load and control terminals Frequency range : 0,009 to 30 MHz	• Load and control terminals Diagram(s) No. <>	[ ]	[ ]	[X]	[1]
4.4	**Radiated Electromagnetic Disturbance**	Operating conditions : according to the article 6				
4.4.1	Frequency range : 0,009 to 30 MHz	• 2 m Loop antenna Diagram (s) No. <2>	[X]	[ ]	[ ]	[ ]
4.4.2	**Radiated disturbance limit**	Operating conditions : according to the article 6 Port(s) : Enclosure Measurement distance: 3 m Antenna Position				
	Frequency range: 30 to 300 MHz	• Vertical • Horizontal Diagram(s) No. <3>	[X] [X]	[ ] [ ]	[ ] [ ]	[ ] [ ]

P : pass - F : Fail - NA : not applicable - Rem : remark

6.2 IMMUNITY STANDARD EN 61547:2009

☒For lighting equipment containing active electronic components which e.g. convert or regulate the operating voltage and/or the frequency of the light source.

Article	TEST	TEST SPECIFICATION	RESULTS			
			P	F	NA	Rem
5.2	**Electrostatic discharges** Table 1 Enclosure Performance criteria B	Contact discharges Level : ± 4 kV Application points : • horizontal coupling plane • vertical coupling plane • Accessible screw	 [X] [X] [X]	 [ ] [ ] [ ]	 [ ] [ ] [ ]	 [2] [2] [2]
	Performance criteria B	Air discharges Level : ± 8 kV Application points : • Cable • plastic enclosure	 [X] [X]	 [ ] [ ]	 [ ] [ ]	 [2] [2]
5.3	**Radio-frequency electromagnetic fields 80 to 1000 MHz** Table 2 Enclosure Performance criteria A	Test field strength : 3 V/m (unmodulated signal) Modulation frequency : 1 kHz Modulation depth : 80 % Frequency Step : 1% Dwell Time : 3 s Logperiodic antenna : • horizontal position • vertical position	 [X] [X]	 [ ] [ ]	 [ ] [ ]	 [2] [2]
5.4	**Fast transients/bursts** Table 6 Alternative current power input and output ports Performance criteria B	Level : ± 1 kV Rise time/hold time : 5/50 ns Repetition rate : 5 kHz Testing time : 2 min Port(s) : • AC mains	 [X]	 [ ]	 [ ]	 [2]

P : pass - F : Fail - NA : not applicable - Rem : remark

Article	TEST	TEST SPECIFICATION	RESULTS P	F	NA	Rem
5.5	**Injected current 0,15 to 80 MHz** Table 9 Alternative current power input and output ports Performance criterion A	Voltage level : 3 V (unmodulated signal) Modulation frequency : 1 kHz Modulation depth : 80 % Frequency Step : 1% Dwell Time: 3 s Application with CND-M2 Port(s) : • AC mains	[X]	[ ]	[ ]	[2]
5.6	**Surges** Table 10 Alternative current power input and output ports Performance criterion C	Tr/Th(µs) : 1.2/50 (8/20) Number of surges : ±5 pluse Phase angles : ±90°° Level : ± 1.0kV Port(s) : • Phase to Neutral	[X]	[ ]	[ ]	[2]
	Performance criterion C	Level : ± 2.0kV Port(s) : • Phase to PE • Neutral to PE	[X] [X]	[ ] [ ]	[ ] [ ]	[2] [2]
5.7	**Voltage dips and voltage interruptions** Table 12 Alternative current power input and output port(s) Performance criterion B	Voltage interruptions Test level : 0 % U_t Duration : 10 ms Phase angles : 0° and 180° Port(s) : • AC mains	[X]	[ ]	[ ]	[2]
	Table 11 Alternative current power input and output port (s) Performance criterion C	Voltage dips Test level : 70 % U_t Duration : 200 ms Phase angles : 0° Port(s) : • AC mains	[X]	[ ]	[ ]	[2]

P : pass - F : Fail - NA : not applicable - Rem : remark

6.3 EMISSION STANDARD EN 61000-3-2:2014

TEST	TEST SPECIFICATION	RESULTS			
		P	F	NA	Rem
Limits for harmonic currents emission	Frequency range: 0 to 2 kHz Class of the apparatus : C Rated input power : ☐ ≤ 25W ☒ > 25W Table(s) No. <1>	[X]	[ ]	[ ]	[ ]

P : pass – F : Fail – NA : not applicable – Rem : remark

6.4 EMISSION STANDARD EN 61000-3-3:2013

TEST	TEST SPECIFICATION	RESULTS			
		P	F	NA	Rem
Limitation of voltage fluctuations and flicker in low-voltage supply systems	Frequency range: 0 to 2 kHz Table(s) No. <>	[X]	[ ]	[ ]	[ ]

P : pass – F : Fail – NA : not applicable – Rem : remark

Remark(s) :

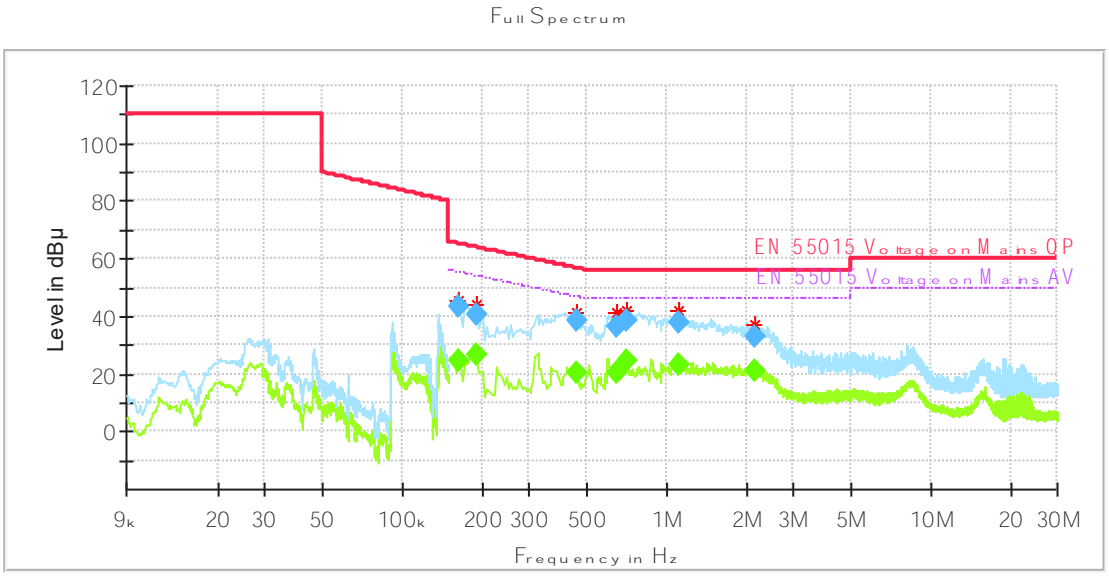
1. There are no load and control terminals.
2. During test, no change of operation state.
3. Belonging to Class II with adapter, Without PE Connection.

7 CONCLUSION

The apparatus LED Tri-proof Light and models listed in the clause 3.1 are in compliance with the requirements of the standards EN 55015:2013+A1:2015, EN 61547:2009, EN 61000-3-2:2014 and EN 61000-3-3:2013.

Diagram No. 1: Conducted Emission

L Line

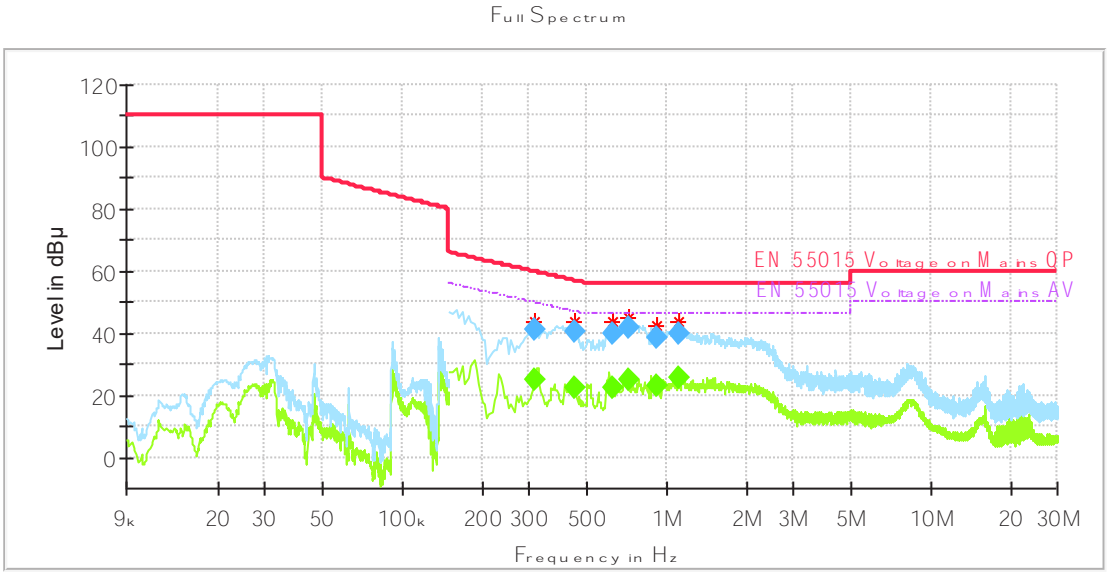


Final_Result

Frequency (MHz)	QuasiPeak (dB¦ìV)	Average (dB¦ìV)	Limit (dB¦ìV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.163500	---	24.53	55.28	30.76	1000.0	9.000	L1	ON	9.6
0.163500	43.33	---	65.28	21.95	1000.0	9.000	L1	ON	9.6
0.190500	---	26.95	54.02	27.07	1000.0	9.000	L1	ON	9.6
0.190500	40.73	---	64.02	23.28	1000.0	9.000	L1	ON	9.6
0.456000	---	20.25	46.77	26.52	1000.0	9.000	L1	ON	9.6
0.456000	38.38	---	56.77	18.38	1000.0	9.000	L1	ON	9.6
0.649500	---	20.73	46.00	25.27	1000.0	9.000	L1	ON	9.6
0.649500	36.33	---	56.00	19.67	1000.0	9.000	L1	ON	9.6
0.699000	---	24.92	46.00	21.08	1000.0	9.000	L1	ON	9.6
0.699000	38.73	---	56.00	17.27	1000.0	9.000	L1	ON	9.6
1.108500	---	23.19	46.00	22.81	1000.0	9.000	L1	ON	9.7
1.108500	37.83	---	56.00	18.17	1000.0	9.000	L1	ON	9.7
2.148000	---	21.12	46.00	24.88	1000.0	9.000	L1	ON	9.8
2.148000	33.18	---	56.00	22.82	1000.0	9.000	L1	ON	9.8

Continued

N Line

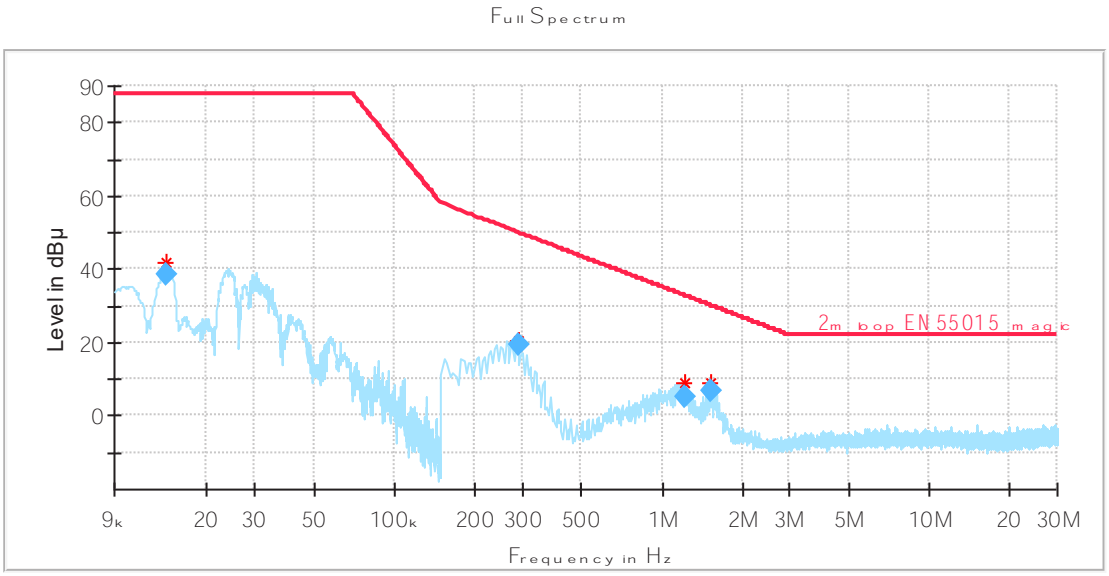


Final_Result

Frequency (MHz)	QuasiPeak (dB¦ìV)	Average (dB¦ìV)	Limit (dB¦ìV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.316500	---	25.22	49.80	24.58	1000.0	9.000	N	ON	9.6
0.316500	41.05	---	59.80	18.75	1000.0	9.000	N	ON	9.6
0.447000	---	22.18	46.93	24.75	1000.0	9.000	N	ON	9.6
0.447000	40.61	---	56.93	16.32	1000.0	9.000	N	ON	9.6
0.627000	---	22.43	46.00	23.57	1000.0	9.000	N	ON	9.6
0.627000	39.82	---	56.00	16.18	1000.0	9.000	N	ON	9.6
0.717000	---	24.77	46.00	21.23	1000.0	9.000	N	ON	9.6
0.717000	41.85	---	56.00	14.15	1000.0	9.000	N	ON	9.6
0.910500	---	23.24	46.00	22.76	1000.0	9.000	N	ON	9.6
0.910500	38.47	---	56.00	17.53	1000.0	9.000	N	ON	9.6
1.108500	---	25.85	46.00	20.15	1000.0	9.000	N	ON	9.7
1.108500	39.90	---	56.00	16.10	1000.0	9.000	N	ON	9.7

Diagram No. 2: Radiated Emission in the frequency range 9kHz-30MHz

X Axis

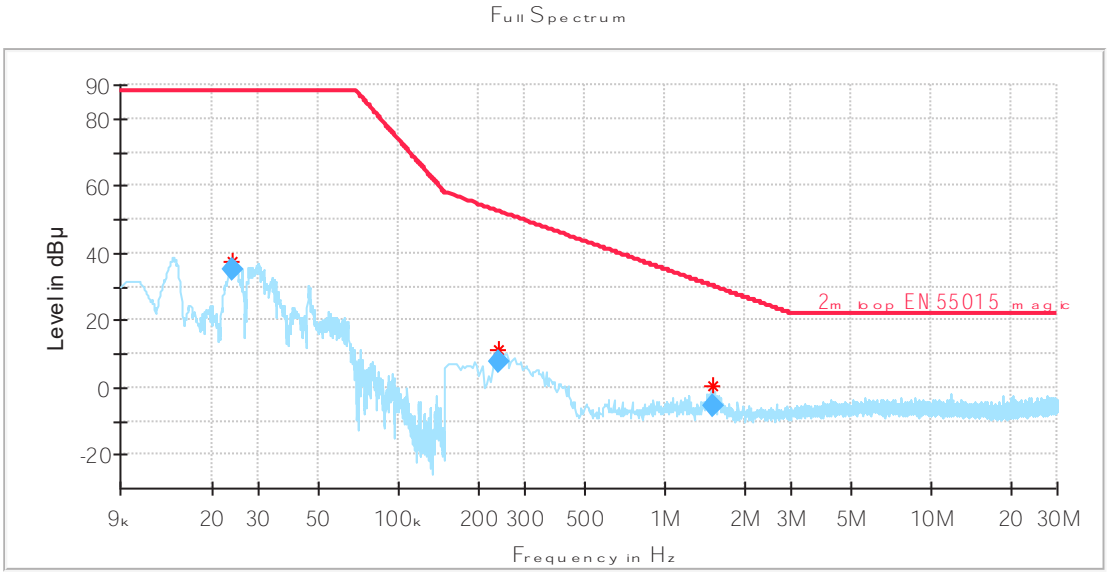


Final_Result

Frequency (MHz)	QuasiPeak (dB¦ìA)	Limit (dB¦ìA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)	Comment
0.014200	38.56	88.00	49.44	1000.0	0.200	X	0.0	15:56:50 - 2019/1/15
0.290000	19.23	50.08	30.85	1000.0	9.000	X	0.2	15:56:59 - 2019/1/15
1.210000	4.95	32.91	27.96	1000.0	9.000	X	0.2	15:57:03 - 2019/1/15
1.514000	6.59	30.22	23.62	1000.0	9.000	X	0.2	15:57:07 - 2019/1/15

Continued

Y Axis

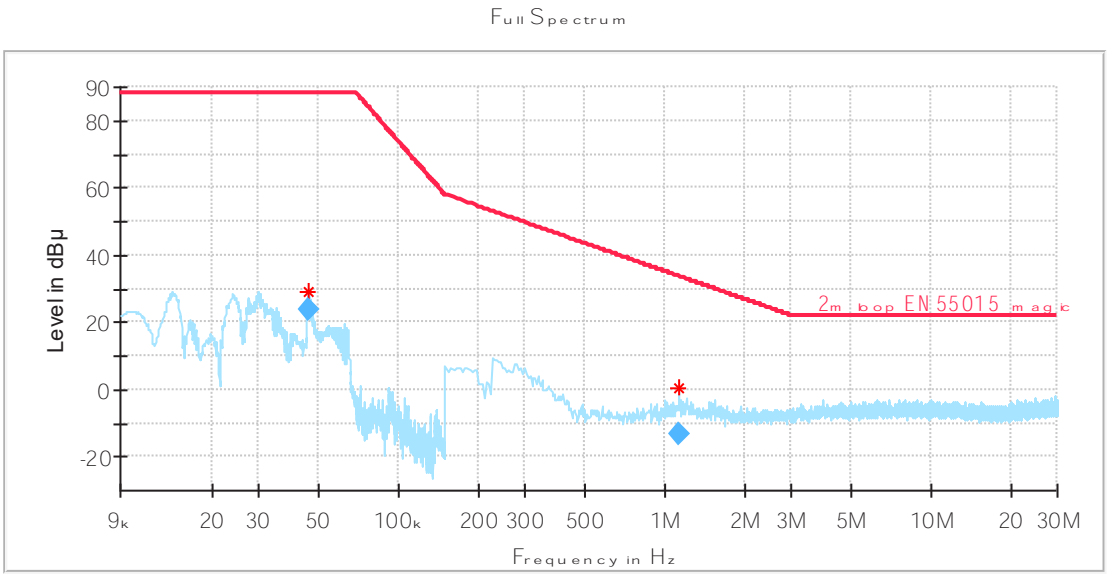


Final_Result

Frequency (MHz)	QuasiPeak (dB¦ìA)	Limit (dB¦ìA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)	Comment
0.023960	34.78	88.00	53.22	1000.0	0.200	Y	0.0	16:01:43 - 2019/1/15
0.238000	7.73	52.45	44.72	1000.0	9.000	Y	0.1	16:01:52 - 2019/1/15
1.530000	-5.74	30.09	35.83	1000.0	9.000	Y	0.2	16:01:56 - 2019/1/15

Continued

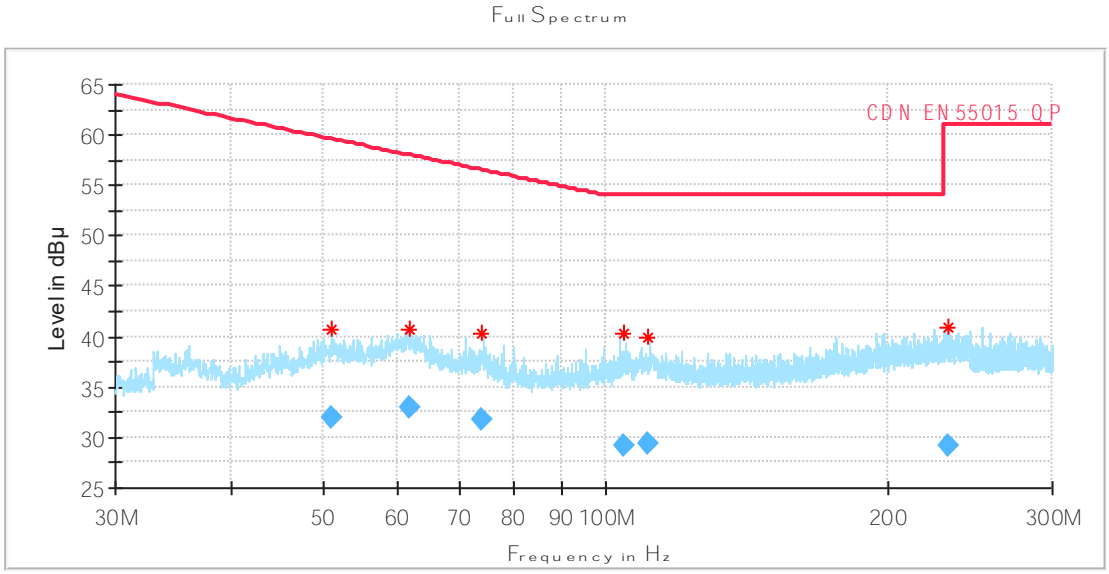
Z Axis



Final_Result

Frequency (MHz)	QuasiPeak (dB¦ìA)	Limit (dB¦ìA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)	Comment
0.046200	23.83	88.00	64.17	1000.0	0.200	Z	0.1	16:21:09 - 2019/1/15
1.134000	-13.54	33.69	47.23	1000.0	9.000	Z	0.2	16:21:18 - 2019/1/15

Diagram No. 3: Radiated Emission in the frequency range 30-300MHz



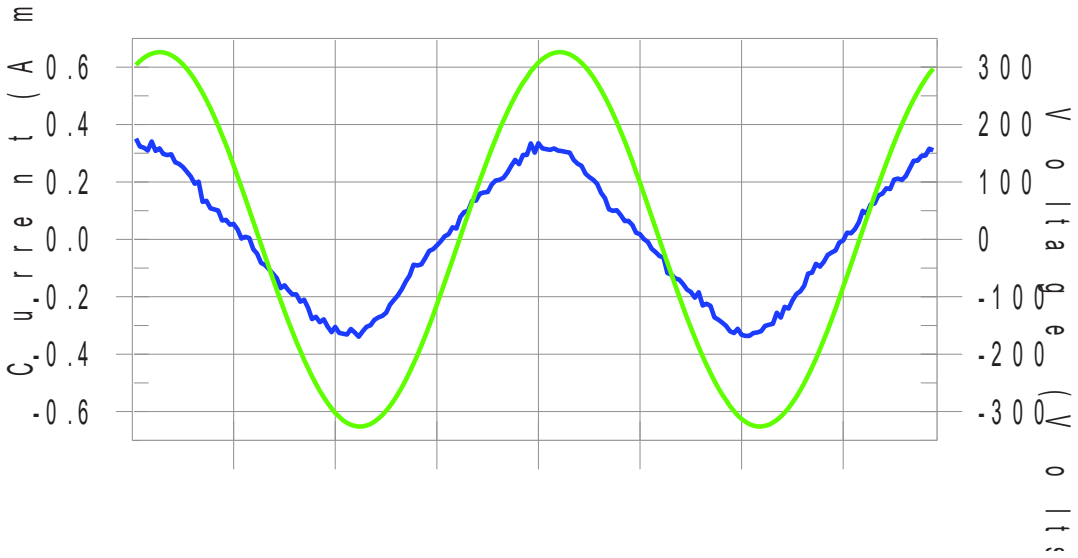
Final_Result

Frequency (MHz)	QuasiPeak (dB¦ìV)	Limit (dB¦ìV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Comment
51.160000	31.96	59.57	27.61	1000.0	120.000	18.6	10:32:00 - 2019/1/15
61.720000	32.90	58.01	25.11	1000.0	120.000	18.9	10:32:12 - 2019/1/15
73.680000	31.76	56.54	24.78	1000.0	120.000	19.2	10:32:25 - 2019/1/15
104.600000	29.20	54.00	24.80	1000.0	120.000	19.4	10:32:37 - 2019/1/15
111.160000	29.44	54.00	24.56	1000.0	120.000	19.3	10:32:49 - 2019/1/15
232.440000	29.14	61.00	31.86	1000.0	120.000	20.8	10:33:01 - 2019/1/15

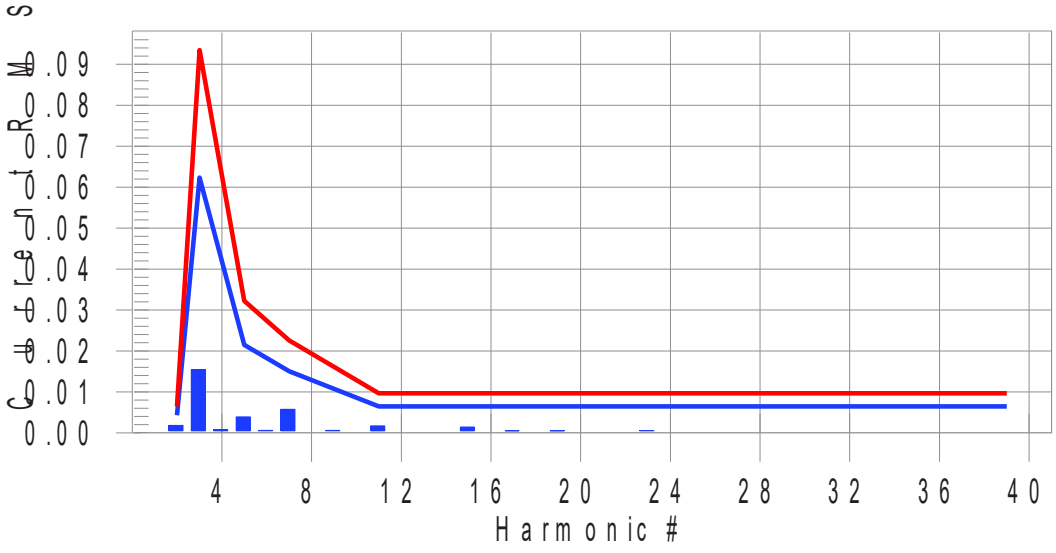
Table(s) No. <1>

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class C limit line **European Limits**



Test result: Pass Worst harmonics H7-26.6% of 150% limit, H7-38.2% of 100% limit

Current Test Result Summary (Run time)

Test Result: Pass **Source qualification: Normal**
THC(A): 0.017 **I-THD(%): 8.1** **POHC(A): 0.001** **POHC Limit(A): 0.020**

Highest parameter values during test:

V_RMS (Volts):	230.72	Frequency(Hz):	50.00
I_Peak (Amps):	0.393	I_RMS (Amps):	0.216
I_Fund (Amps):	0.215	Crest Factor:	1.832
Power (Watts):	48.1	Power Factor:	0.967

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.002	0.004	N/A	0.003	0.006	N/A	Pass
3	0.015	0.062	24.8	0.017	0.093	17.7	Pass
4	0.001	0.000	N/A	0.001	0.000	N/A	Pass
5	0.004	0.021	N/A	0.004	0.032	N/A	Pass
6	0.001	0.000	N/A	0.001	0.000	N/A	Pass
7	0.006	0.015	38.2	0.006	0.023	26.6	Pass
8	0.000	0.000	N/A	0.000	0.000	N/A	Pass
9	0.001	0.011	N/A	0.001	0.016	N/A	Pass
10	0.000	0.000	N/A	0.000	0.000	N/A	Pass
11	0.002	0.006	N/A	0.002	0.010	N/A	Pass
12	0.000	0.000	N/A	0.000	0.000	N/A	Pass
13	0.000	0.006	N/A	0.001	0.010	N/A	Pass
14	0.000	0.000	N/A	0.000	0.000	N/A	Pass
15	0.001	0.006	N/A	0.002	0.010	N/A	Pass
16	0.000	0.000	N/A	0.000	0.000	N/A	Pass
17	0.001	0.006	N/A	0.001	0.010	N/A	Pass
18	0.000	0.000	N/A	0.000	0.000	N/A	Pass
19	0.001	0.006	N/A	0.001	0.010	N/A	Pass
20	0.000	0.000	N/A	0.000	0.000	N/A	Pass
21	0.000	0.006	N/A	0.000	0.010	N/A	Pass
22	0.000	0.000	N/A	0.000	0.000	N/A	Pass
23	0.001	0.006	N/A	0.001	0.010	N/A	Pass
24	0.000	0.000	N/A	0.000	0.000	N/A	Pass
25	0.000	0.006	N/A	0.001	0.010	N/A	Pass
26	0.000	0.000	N/A	0.000	0.000	N/A	Pass
27	0.000	0.006	N/A	0.001	0.010	N/A	Pass
28	0.000	0.000	N/A	0.000	0.000	N/A	Pass
29	0.000	0.006	N/A	0.001	0.010	N/A	Pass
30	0.000	0.000	N/A	0.000	0.000	N/A	Pass
31	0.000	0.006	N/A	0.001	0.010	N/A	Pass
32	0.000	0.000	N/A	0.000	0.000	N/A	Pass
33	0.000	0.006	N/A	0.001	0.010	N/A	Pass
34	0.000	0.000	N/A	0.000	0.000	N/A	Pass
35	0.000	0.006	N/A	0.000	0.010	N/A	Pass
36	0.000	0.000	N/A	0.000	0.000	N/A	Pass
37	0.000	0.006	N/A	0.001	0.010	N/A	Pass
38	0.000	0.000	N/A	0.000	0.000	N/A	Pass
39	0.000	0.006	N/A	0.001	0.010	N/A	Pass
40	0.000	0.000	N/A	0.001	0.000	N/A	Pass

Note: Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

--END--