




LCIE

TEST REPORT N°: ERA-ESH-P21010430B
EMC TEST REPORT

To :	Zhejiang Era Solar Technology Co.,Ltd	Fax :	--
Attn :	--	Email :	--
Address :	Sihai road,Huangyan Economic Development Zone,Taizhou,Zhejiang,China		
Cc :	--	Fax/Email	--
Attn :	--		
This document includes : 42 pages		Test date :	Nov.27 to 30, 2020

FACTORY NAME :	Zhejiang Era Solar Technology Co.,Ltd	
ADDRESS :	Sihai road,Huangyan Economic Development Zone,Taizhou,Zhejiang,China	
PRODUCT :	Solar light	
TYPE REFERENCE :	Refer to model list	
RATED VOLTAGE :	Powered by battery	
RATED INPUT POWER :	--	
PROTECTION CLASS :	III	
TESTS REALISED :	--	

STANDARDS USED(DATE) :	BS EN IEC 55015:2019+A11:2020 BS EN 61547:2009
CLAUSES EXAMINED :	All Clauses Relevant

Test Location: Building C, No. 829, Xin Zhuan Road, Shanghai, CHINA

CONCLUSION :	The samples do satisfy the clauses examined .
Test done by:	Approved by:
Name : Jim DAI <i>Jim DAI</i>	Name : Yi XU
Date : Jan.27, 2021	Date : Jan.27, 2021

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

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1 TESTING PROGRAM

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

Emission standard BS EN IEC 55015:2019+A11:2020

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

Immunity standard BS EN 61547:2009

- Immunity to electrostatic discharges - publication IEC 61000-4-2.
- Immunity to fast transients/bursts - publication IEC 61000-4-4.
- Immunity to conducted disturbances induced by radio-frequency fields - publication IEC 61000-4-6.
- Immunity to power frequency magnetic field- publication IEC 61000-4-8.
- Immunity to radiated radio-frequency electromagnetic field with amplitude modulation - publication IEC 61000-4-3.
- Immunity to surges - publication IEC 61000-4-5.
- Immunity to voltage dips -publication IEC 61000-4-11.
- Immunity to voltage interruptions - publication IEC 61000-4-11.

Special Comment : This report is a co-report based on history report ERA-ESH-P20111988B which with CE certificate.

2 HISTORY OF FAILURE

None.

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3.3 Pictures of sample





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EC11050



EC11052



EC11053



EC11055



EC11056



EC11058



EC11060



EC11060-3



EC11062

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EC11069



EC11070



EC11085



EC11088



EC11095



EC11103-D1



EC11103-D2



EC11111



EC11115

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EC11116



EC11117



EC11118



EC11119



EC11120



EC11122



EC11123



EC11124



EC11125



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EC11126



EC11127



EC11128



EC11129-1



EC11129-5



EC11132



EC11135



EC11136



EC11137

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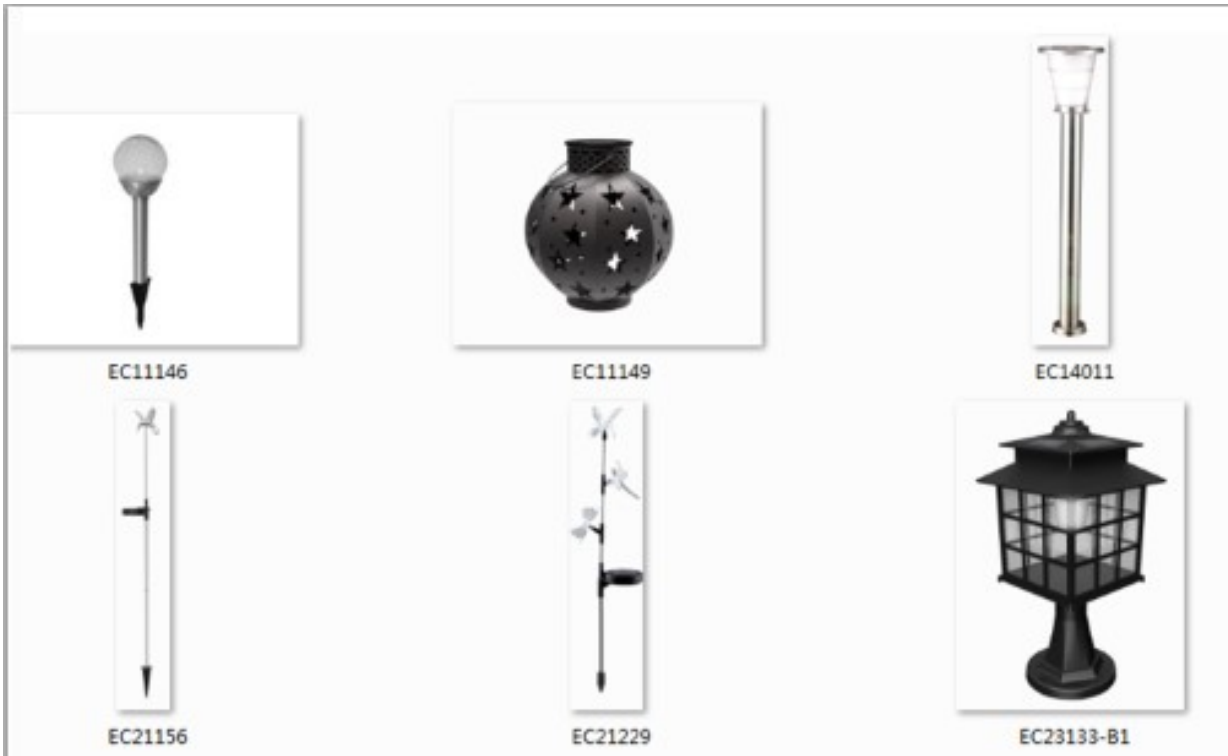
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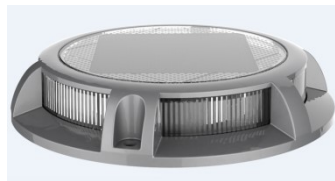


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EC23435



EC41057



EC41075



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EC23133-C1



EC23134



EC23134-B1



EC23134-D1



EC23137



EC23184



EC23184-D1



EC23185



EC23201



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EC23204



EC23211



EC23211-1



EC23216



EC23216-B1



EC23216-C1



EC23216-D1



EC23217



EC23221



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EC23230



EC23230-D1



EC23230-D2



EC23234



EC23235



EC23236



EC23241



EC23242



EC23245

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EC23245-C1



EC23252



EC23262



EC23276-1



EC23280



EC23288



EC23289



EC23291-1



EC23291-2

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EC23291-5



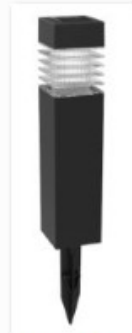
EC23291-6



EC23291-D2



EC23291-D3



EC23310



EC23311



EC23322



EC23329



EC23330



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EC23331



EC23333



EC23334



EC23335



EC23336



EC23341



EC23342



EC23343



EC23344



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EC23345



EC23346



EC23346-1



EC23348



EC23351



EC23352



EC23353



EC23357



EC23357-C1



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EC23359



EC23366



EC23374



EC23379



EC23379-C1



EC23386



EC23387



EC25216



EC23133-D1



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EC25226



EC41012



EC41013



EC41015



EC41018



EC41025



EC23347



EC23388



EC23401



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EC41026



EC41028



EC41037



EC61012



EC61013



EC61015-D1



EC61015-D4



EC61015-D5



EC61015-D6



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EC61016-D1



EC61016-D2



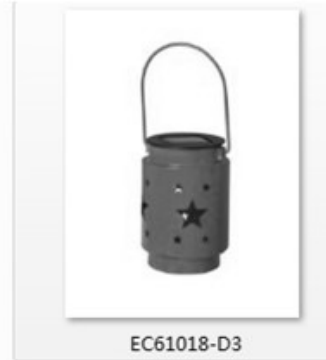
EC61017



EC61018-D1



EC61018-D2



EC61018-D3



EC61019-D1



EC61019-D2



EC41046



EC41053



EC41052



EC41051

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EC41055



EC11155



EC61026-1



EC61026-2



EC23400



EC23402



EC23405



EC23403



EC23413

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EC23405



EC23403



EC23413



EC23433



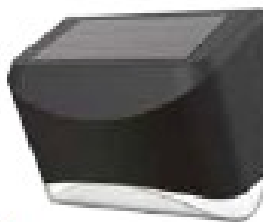
EC23423



EC41073



EC23428-1



EC23429



EC23432

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EC11153



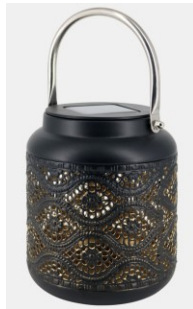
EC11150



EC61029



EC61030



EC61013-1



EC61013-2



EC61023



EC11075



EC11157



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EC11017



EC11103-2



EC23211C



EC41029



EG1001



EG1002



EG1003



EG1004



EG1005



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EG1006



EG1007



EG1008



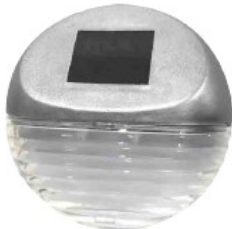
EC23451



EC23438



EC23453



EC23445



EC11165



EC11163



EC11166



EC11167



EG1009



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EG1010



EG1011



EG1012



EC23452



EC23439



EC23439-1



EG1015



EG1016



EG1017



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EC23404



EC32101



EC23443



EG1014



EC41059



EG1013



EG1018



EG1019



EG1020

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EG1021



EG1022



EG1023



EG1024



EG1025



EG1026



EC23442



EC11168



EC23446

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EC23441



EC23456



EC23440



EC23465



EC23379-C2



EC23467



EC23457



EC23449

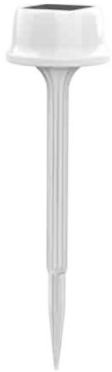


EC23458-1



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EC23459



EC11171



EC41069



EC41070



EC41071



EC41072



EC23461



EC41027



EC41028

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EC41040



EC23437



EC11103-2 ORB



EC2306



EC61039



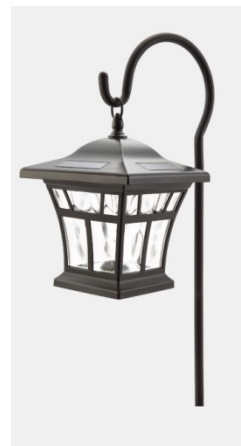
EC61040



EC11129-5 BRONZE



EC11132 BRONZE



EC41049-D1

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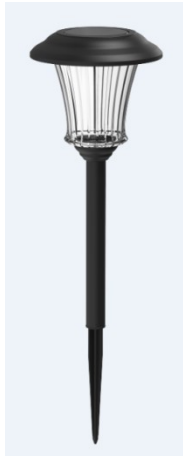
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EC11151



EC11103-2



EC23418



EC23460-1



EC23443-1



EC23455



EC23436



EG1028



EG1033



LCIE

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EG1034



EG1032

4 OPERATING CONDITIONS

The apparatus was placed in a shielded room, full or semi anechoic chamber, and was powered by battery. The apparatus was worked continuously.

Ambient conditions :	Temperature	:	22-23 °C
	Relative humidity	:	48-53 %
	Atmospheric pressure	:	101-101.3 kPa

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.

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6 TEST RESULTS

6.1 EMISSION STANDARD BS EN IEC 55015:2019+A11:2020

Article	TEST	TEST SPECIFICATION	RESULTS			
			P	F	NA	Rem
4.3	<u>Disturbance Voltage of wired network ports</u>	Operating conditions : according to the article 7				
4.3.1	Mains terminals Frequency range: 0,009 to 30 MHz	Port(s) : • AC mains port • Diagram(s) No. < >	[]	[]	[X]	[1]
4.4	<u>Disturbance Voltage of local wired ports</u> Frequency range : 0,009 to 30 MHz	• Load and control terminals Diagram(s) No. < >	[]	[]	[X]	[2]
4.5	<u>Radiated Electromagnetic Disturbance</u>	Operating conditions : according to the article 7				
4.5.2	Frequency range : 0,009 to 30 MHz	• 2 m Loop antenna Diagram (s) No. <1>	[X]	[]	[]	[]
4.5.3	<u>Radiated disturbance limit</u> Frequency range: 30 to 1000 MHz	Operating conditions : according to the article 7 Port(s) : Enclosure Measurement distance: 3 m Antenna Position • Vertical • Horizontal Diagram(s) No. <2>	[X] [X]	[] []	[] []	[] []

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



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6.2 IMMUNITY STANDARD BS 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	<u>Electrostatic discharges</u> Table 1 Enclosure Performance criteria B	Contact discharges Level : \pm 4 kV Application points : • horizontal coupling plane • vertical coupling plane	[X] [X]	[] []	[] []	[3] [3]
		Performance criteria B	Air discharges Level : \pm 8 kV Application points : • enclosure	[X]	[]	[]
5.3	<u>Radio-frequency electromagnetic fields 80 to 1000 MHz</u> 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 : 2s Logperiodic antenna : - horizontal position - vertical position	[X] [X]	[] []	[] []	[3] [3]
		5.4	<u>Power Frequency Magnetic Field</u> Table 1 Enclosure Performance criteria A	Field frequency : 50/60 Hz Level : 3 A/m	[]	[]
5.5	<u>Fast transients/bursts</u> Table 5 Alternative current power input and output ports Performance criteria B	Level : \pm 0.5 kV Rise time/hold time : 5/50 ns Repetition rate : 5 kHz Testing time : 2 min Port(s) : • AC mains	[]	[]	[X]	[1]

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



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Article	TEST	TEST SPECIFICATION	RESULTS			
			P	F	NA	Rem
5.6	<u>Injected current 0,15 to 80 MHz</u> <u>Table 8</u> 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: 2 s Application with CND-M2/M3 Port(s) : • AC mains	[]	[]	[X]	[1]
5.7	<u>Surges</u> <u>Table 10</u> Alternative current power input and output ports Performance criterion C	Tr/Th(μs) : 1.2/50 (8/20) Number of surges : 5 positive and 5 negative Phase angles : 90° and 270° Level : ± 0.5 kV Port(s) : • power input, between lines and neutral	[]	[]	[X]	[1]
	Performance criterion C	Level : ± 1 kV Port(s) : • power input, between lines and earth • power input, between neutral and earth	[]	[]	[X]	[1]
			[]	[]	[X]	[1]
5.8	<u>Voltage dips and voltage interruptions</u> <u>Table 12</u> Alternative current power input and output port(s) Performance criterion B	<u>Voltage interruptions</u> Test level : 0 % Ut-> 0 V Duration : 10 ms Phase angles : 0° and 180° Port(s) : • AC mains	[]	[]	[X]	[1]
	<u>Table 11</u> Alternative current power input and output port (s) Performance criterion C	<u>Voltage dips</u> Test level : 70 % Ut-> 161 V Duration : 200 ms Phase angles : 0° Port(s) : • AC mains	[]	[]	[X]	[1]

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

Remark(s) :

- 1 : The EUT is powered by battery.
- 2 : There is no load and control terminals.
- 3 : During test, no change of operation state.



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7 CONCLUSION

The apparatuses Solar light and models Refer to model list are in compliance with the requirements of the standards BS EN IEC 55015:2019+A11:2020 and BS EN 61547:2009.



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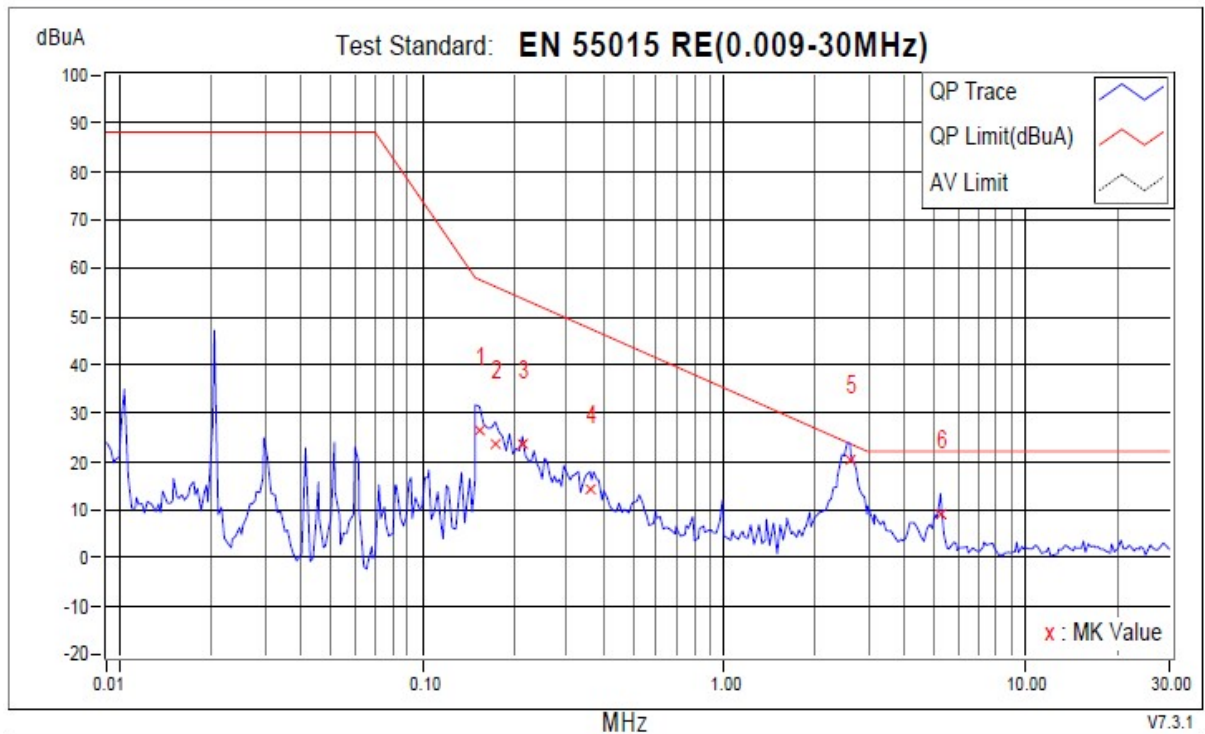


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Diagram No. 1

Location: Conduction 1 Date: 11/27/2020 Time: 9:35:32 AM Phase X
 Temperatur (C): 23 Humidity (%): 53 Approved by:



No.	Frequency MHz	Corr. Factor dB	Reading dBuA QP	Emission dBuA QP	Limit dBuA QP	Margins dB QP	Notes
1	0.15500	0.00	26.53	26.53	57.61	-31.08	
2	0.17500	0.00	23.70	23.70	56.15	-32.45	
3	0.21500	0.00	23.40	23.40	53.67	-30.27	
4	0.36000	0.00	14.27	14.27	47.48	-33.21	
+5	2.62000	0.00	20.39	20.39	23.63	-3.24	
6	5.23500	0.00	8.90	8.90	22.00	-13.10	

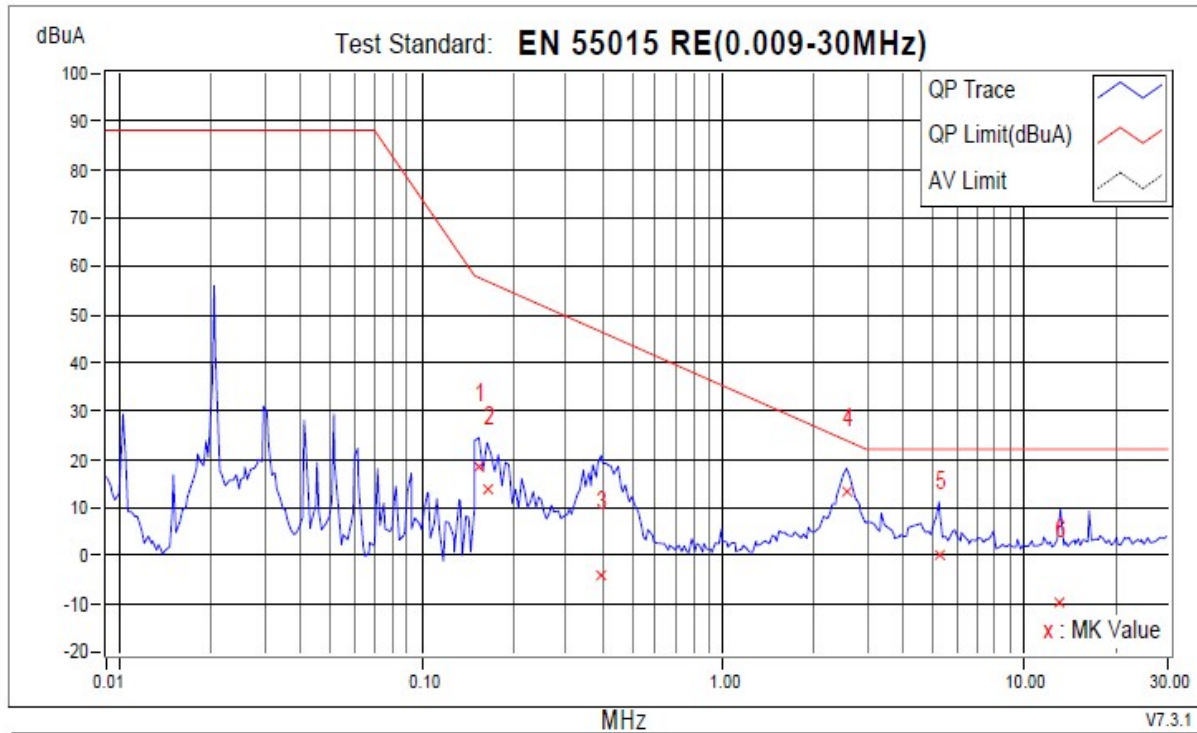


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Continued

Location: Conduction 1 Date: 11/27/2020 Time: 9:44:10 AM Phase Y
 Temperatur (C): 23 Humidity (%): 53 Approved by:



No.	Frequency MHz	Corr. Factor dB	Reading dBuA QP	Emission dBuA QP	Limit dBuA QP	Margins dB QP	Notes
1	0.15500	0.00	18.58	18.58	57.61	-39.03	
2	0.16500	0.00	13.74	13.74	56.85	-43.11	
3	0.39500	0.00	-3.84	-3.84	46.36	-50.20	
+4	2.57500	0.00	13.07	13.07	23.84	-10.77	
5	5.22500	0.00	0.36	0.36	22.00	-21.64	
6	13.21000	0.00	-9.47	-9.47	22.00	-31.47	

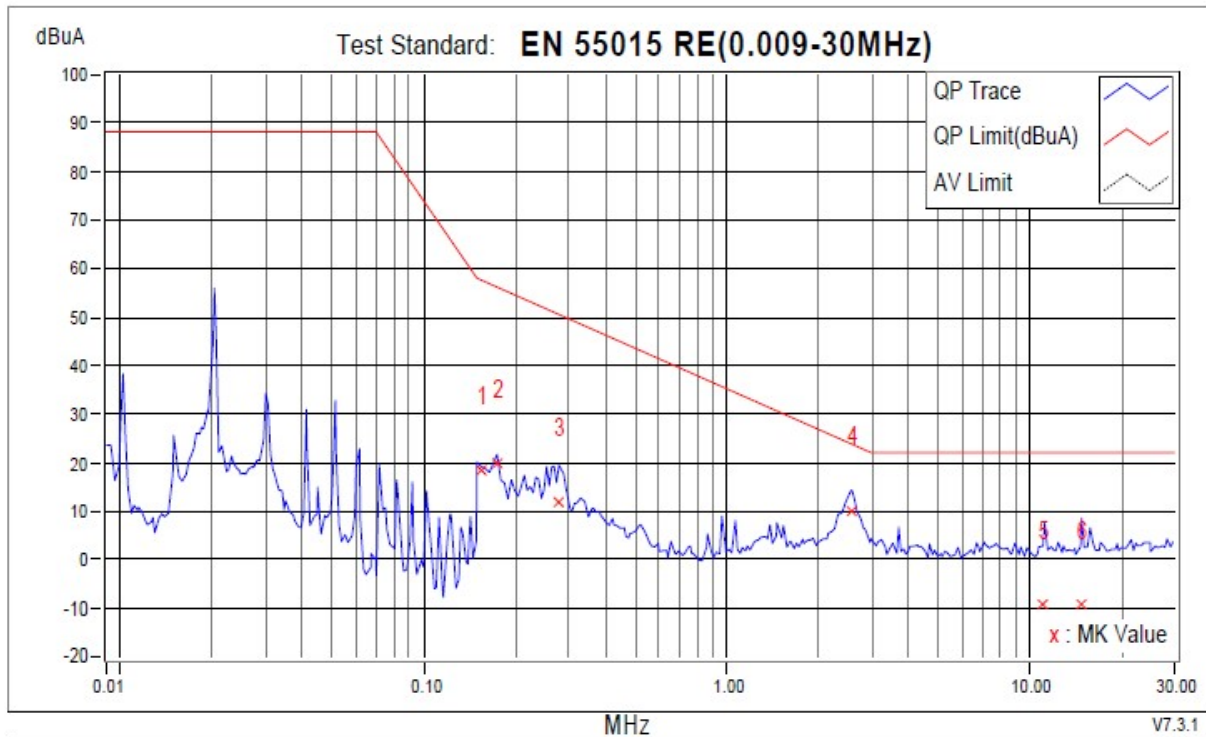


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Continued

Location: Conduction 1 Date: 11/27/2020 Time: 9:50:47 AM Phase Z
 Temperatur (C): 23 Humidity (%): 53 Approved by:



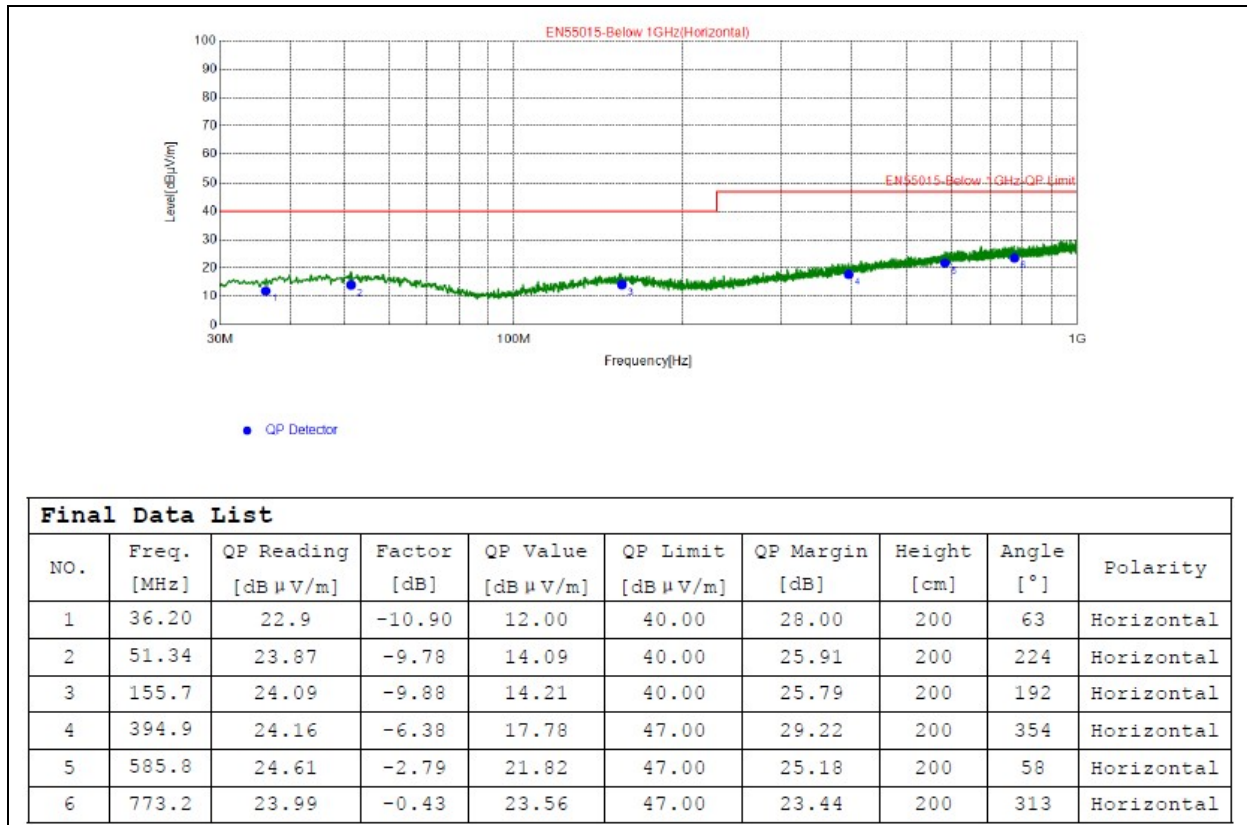
No.	Frequency MHz	Corr. Factor dB	Reading dBuA QP	Emission dBuA QP	Limit dBuA QP	Margins dB QP	Notes
1	0.15500	0.00	18.56	18.56	57.61	-39.05	
2	0.17500	0.00	19.98	19.98	56.15	-36.17	
3	0.28000	0.00	11.77	11.77	50.50	-38.73	
+4	2.57500	0.00	10.04	10.04	23.84	-13.80	
5	11.06000	0.00	-9.38	-9.38	22.00	-31.38	
6	14.83500	0.00	-9.22	-9.22	22.00	-31.22	



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Diagram No. 2





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