

EMC TEST REPORT

For

CHROMATEQ SARL

DMX Lighting Controller

Model No.: SLIM 1024

Additional Model No.: SLIM 512

Prepared for : CHROMATEQ SARL
Address : 191 Allee de Lauzard – Bat B, Rdc 1, 34980 St Gely du Fesc

Prepared by : Guangzhou LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : November 19, 2019
Number of tested samples : 1
Serial number : Prototype
Date of Test : November 19, 2019 ~ November 22, 2019
Date of Report : January 13, 2020



EMC TEST REPORT
EN 55032: 2015
 Information technology equipment-Radio disturbance characteristics-Limits of measurement
EN 55024:2010/A1:2015
 Information technology equipment-Immunity characteristics-Limits and methods of measurement of measurement

Report Reference No.: LCS191114001CE

Date Of Issue.....: January 13, 2020

Testing Laboratory Name.....: **Guangzhou LCS Compliance Testing Laboratory Ltd.**

Address: No.44-1, Qianfeng North Road, Shiqi Town, Panyu District, Guangzhou City, China

Testing Location/ Procedure: Full application of Harmonised standards
 Partial application of Harmonised standards
 Other standard testing method

Applicant's Name.....: CHROMATEQ SARL

Address: 191 Allee de Lauzard – Bat B, Rdc 1, 34980 St Gely du Fesc

Test Specification:

Standard: EN 55032:2015
 EN 55024: 2010
 EN 61000-3-2: 2014
 EN 61000-3-3: 2013

Test Report Form No......: GLCSEMC-1.0

TRF Originator.....: Guangzhou LCS Compliance Testing Laboratory Ltd.

Master TRF: Dated 2017-08

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Test Item Description.....: **DMX Lighting Controller**

Trade Mark.....: CHROMATEQ

Model/ Type Reference: SLIM 1024

Ratings: For controller: DC5V, 1A

Result: **Positive**

Compiled by:

Evan Cao

Supervised by:

Loki Chen

Approved by:



 Evan Cao / File administrators

 Loki Chen/Technique principal

 Andy Yang / Manager

EMC -- TEST REPORT

Test Report No. : LCS191114001CE

January 13, 2020
Date of issue

Type/ Model..... : SLIM 1024

EUT..... : DMX Lighting Controller

Applicant..... : CHROMATEQ SARL

Address..... : 191 Allee de Lauzard – Bat B, Rdc 1, 34980 St Gely du Fesc

Telephone..... : /

Fax..... : /

Manufacturer..... : CHROMATEQ SARL

Address..... : 191 Allee de Lauzard – Bat B, Rdc 1, 34980 St Gely du Fesc

Telephone..... : /

Fax..... : /

Factory..... : CHROMATEQ SARL

Address..... : 191 Allee de Lauzard – Bat B, Rdc 1, 34980 St Gely du Fesc

Telephone..... : /

Fax..... : /

Test Result according to the standards on page 7: **Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	January 13, 2020	Initial Issue	Andy Yang

TABLE OF CONTENT

Test Report Description	Page
1. SUMMARY OF STANDARDS AND RESULTS	7
1.1.Description of Standards and Results.....	7
1.2.Description of Performance Criteria	8
2. GENERAL INFORMATION	9
2.1.Description of Device (EUT)	9
2.2.Statement of the measurement uncertainty.....	9
2.3.Measurement Uncertainty	10
3. measuring Devices and test equipment	11
4. POWER LINE CONDUCTED EMISSION MEASUREMENT	13
4.1.Block Diagram of Test Setup	13
4.2.Test Standard	13
4.3.EUT Configuration on Test	13
4.4.Operating Condition of EUT	13
4.5.Test Procedure	14
4.6.Test Results	14
5. RADIATED EMISSION MEASUREMENT	17
5.1.Block Diagram of Test Setup	17
5.2.Measuring Standard.....	17
5.3.Radiated Emission Limits	17
5.4.EUT Configuration on Test	18
5.5.Operating Condition of EUT	18
5.6.Test Procedure	18
5.7.Test Results	18
6. HARMONIC CURRENT EMISSION MEASUREMENT	27
6.1.Block Diagram of Test Setup	27
6.2.Test Standard	27
6.3.Operation Condition of EUT	27
6.4.Test Results	27
7. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT	28
7.1.Block Diagram of Test Setup	28
7.2.Measuring Standard.....	28
7.3.Operation Condition of EUT	28
7.4.Test Results	28
8. ELECTROSTATIC DISCHARGE IMMUNITY TEST	29
8.1.Block Diagram of Test Setup	29
8.2.Test Standard	29
8.3.Severity Levels and Performance Criterion	29
8.4.EUT Configuration on Test	29
8.5.Operating Condition of EUT	29
8.6.Test Procedure	30
8.7.Test Results	30
9. RF FIELD STRENGTH SUSCEPTIBILITY TEST	32
9.1.Block Diagram of Test	32
9.2.Test Standard	32
9.3.Severity Levels and Performance Criterion	32
9.4.EUT Configuration on Test	33
9.5.Operating Condition of EUT	33
9.6.Test Procedure	33
9.7.Test Results	33
10. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST	35
10.1.Block Diagram of Test Setup	35
10.2.Test Standard	35

10.3.Severity Levels and Performance Criterion 35

10.4.EUT Configuration on Test 35

10.5.Operating Condition of EUT 35

10.6.Test Procedure 36

10.7.Test Results 36

11. SURGE IMMUNITY TEST 38

11.1.Block Diagram of Test Setup..... 38

11.2.Test Standard 38

11.3.Severity Levels and Performance Criterion..... 38

11.4.EUT Configuration on Test 38

11.5.Operating Condition of EUT 39

11.6.Test Procedure 39

11.7.Test Results..... 39

12. INJECTED CURRENTS SUSCEPTIBILITY TEST 41

12.1.Block Diagram of Test Setup 41

12.2.Test Standard 41

12.3.Severity Levels and Performance Criterion 41

12.4.EUT Configuration on Test 41

12.5.Operating Condition of EUT..... 42

12.6.Test Procedure 42

12.7.Test Results 42

13. MAGNETIC FIELD SUSCEPTIBILITY TEST 44

13.1.Block Diagram of Test Setup 44

13.2.Test Standard 44

13.3.Severity Levels and Performance Criterion 44

13.4.EUT Configuration on Test 44

13.5.Test Procedure 45

13.6.Test Results 45

14. VOLTAGE DIPS AND INTERRUPTIONS TEST 47

14.1.Block Diagram of Test Setup 47

14.2.Test Standard 47

14.3.Severity Levels and Performance Criterion 47

14.4.EUT Configuration on Test 47

14.5.Operating Condition of EUT 48

14.6.Test Procedure 48

14.7.Test Results 48

15. Photographs 50

16. EXTERNAL AND INTERNAL PHOTOS OF THE EUT..... 53

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION (CISPR32:2015)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	CISPR32:2015	Class B	PASS
Conducted disturbance at telecommunication port	CISPR32:2015	Class B	N/A
Radiated disturbance	CISPR32:2015	Class B	PASS
Harmonic current emissions	EN 61000-3-2: 2014	Class A	PASS
Voltage fluctuations & flicker	EN 61000-3-3: 2013	-----	PASS
IMMUNITY (CISPR24 : 2010+A1 : 2015)			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	EN 61000-4-2: 2009	B	PASS
Radio-frequency, Continuous radiated disturbance	EN 61000-4-3: 2006+A1: 2010	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4: 2012	B	PASS
Surge (Input a.c. power ports)	EN 61000-4-5: 2014	B	PASS
Surge (Telecommunication ports)		B	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6: 2014	A	PASS
Power frequency magnetic field	EN 61000-4-8: 2010	A	PASS
Voltage dips, >95% reduction	EN 61000-4-11: 2004	B	PASS
Voltage dips, 30% reduction		C	PASS
Voltage interruptions		C	PASS
N/A is an abbreviation for Not Applicable.			

1.2. Description of Performance Criteria

General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

1.2.1. Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.2. Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.3. Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : DMX Lighting Controller

Trade Mark : CHROMATEQ

Model Number : SLIM 1024

Power Supply : For controller: DC5V, 1A

EUT Clock Frequency : $\leq 108\text{MHz}$

2.2. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.3.Measurement Uncertainty

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty (U_{cispr})
Conducted Emission	Level accuracy (9kHz to 150kHz)	2.6 dB	4.0 dB
	(150kHz to 30MHz)	2.4 dB	3.6 dB
Radiated Emission	Level accuracy (9kHz to 30MHz)	3.7 dB	N/A
Radiated Emission	Level accuracy (30MHz to 1000MHz)	3.5 dB	5.2 dB
Radiated Emission	Level accuracy (above 1000MHz)	3.9 dB	N/A
Mains Harmonic	Voltage	0.51%	N/A
Voltage Fluctuations & Flicker	Voltage	0.51%	N/A

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a ON distribution corresponds to a coverage probability of approximately 95%.

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1. Conducted Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESR3	102312	2018.06.29
2	10dB Attenuator	SCHWARZBECK	MTS-IMP136	61115-001-0032	2019.01.29
3	Artificial Mains Network	ROHDE & SCHWARZ	ESH2-Z5	100030	2019.01.29
4	EMI Test Software	Farad	EZ-EMC	/	N/A

3.2. Disturbance Power

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESR3	102312	2018.06.29
2	Absorbing clamp	Com-Power	CLA-050	431060	2019.02.19
3	EMI Test Software	Farad	EZ-EMC	/	
4	6dB Attenuator	/	/	/	2019.01.29

3.3. Radiated Disturbance (Electric Field)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	3m Semi Anechoic Chamber	Mao Rui	/	/	2018.01.04
2	EMI Test Receiver	ROHDE & SCHWARZ	ESR 3	102311	2018.06.29
3	Biconical Antenna	ROHDE & SCHWARZ	VHBB 9124	01015	2018.09.21
4	Log Periodic Broadband Antenna	ROHDE & SCHWARZ	VULP 9118B	873	2018.09.21
5	EMI Test Software	Farad	EZ-EMC	/	/

3.4. Harmonic Current

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power Analyzer Test System	Voltech	PM6000	20000670053	2018.06.18

3.5. Voltage fluctuation and Flicker

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power Analyzer Test System	Voltech	PM6000	20000670053	2018.06.18

3.6. Electrostatic Discharge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	Teseq	NSG437	1211	2018.09.20

3.7. RF Field Strength Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	SIGNAL GENERATOR	R&S	SMB100A	105942	2018.09.14
2	Log-periodic Antenna	SCHWARZBECK	STLP9128D	043	2018.09.14
3	RF Power Amplifier	BONN Elektronik	BLWA0830-160/100/40D	128740	2018.09.14

4	Power Meter	R&S	102031	16829	2018.09.14
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3.8.Electrical Fast Transient/Burst

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Immunity tester	EMC-Partner	Transient 2000	584	2019.02.19

3.9.Surge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Immunity tester	EMC-Partner	Transient 2000	584	2019.02.19

3.10.Conducted Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Simulator	FRANKONIA	CIT-10	A126A1195	2018.06.18
2	CDN	FRANKONIA	CDN-M2	5100100100	2018.06.18
3	CDN	FRANKONIA	CDN-M3	0900-11	2018.06.18
4	Attenuator	FRANKONIA	ATT6	0010222A	2018.06.18
5	Infuse tongs	EMTEST	EM-Clamp	0513A031201	2018.06.18

3.11.Voltage Dips

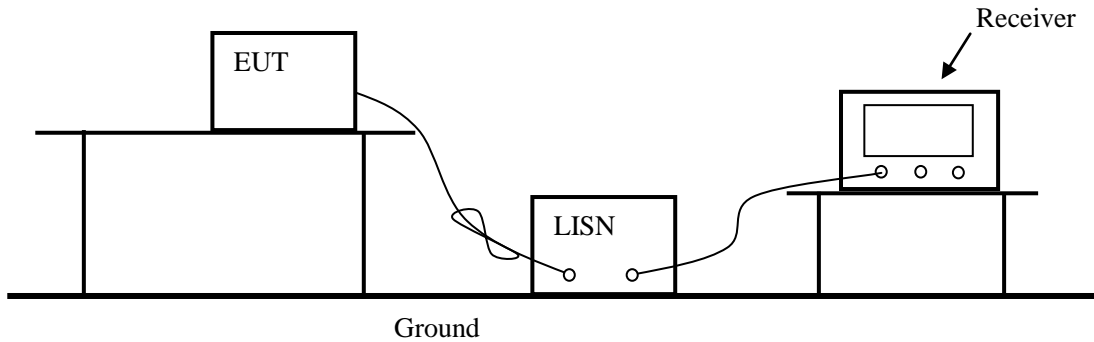
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Immunity tester	EMC-Partner	Transient 2000	584	2019.02.19

3.12.Voltage Short Interruptions

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Immunity tester	EMC-Partner	Transient 2000	584	2019.02.19

4. POWER LINE CONDUCTED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



4.2. Test Standard

EN 55032: 2015

Power Line Conducted Emission Limits (Class B)

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.

NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

4.3. EUT Configuration on Test

The following equipments are installed on Conducted Emission Measurement to see EN 55032 requirements and operating in a manner which tends to maximize its emission characteristics in ON application.

4.4. Operating Condition of EUT

4.4.1. Setup the EUT as shown on Section 4.1.

4.4.2. Turn on the power of all equipments.

4.4.3. Let the EUT work in measuring mode (work) and measure it.

4.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided 50-ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the EN 55032 regulations during conducted emission measurement.

The bandwidth of the field strength meter is set at 9kHz in 150kHz~30MHz.

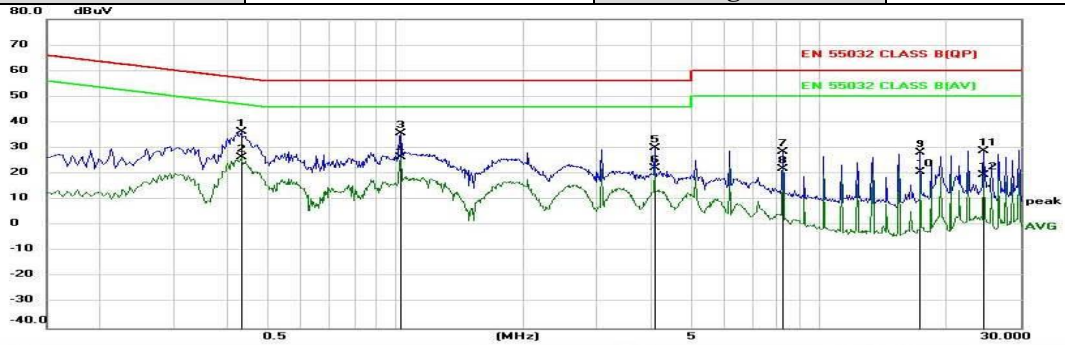
The frequency range from 150kHz to 30MHz is investigated

4.6. Test Results

PASS.

The test result please refer to the next page.

Model No.	SLIM 1024	Test Mode	SA
Environmental Conditions	24.0°C, 46.0% RH	Detector Function	Quasi-peak
Pol	Line	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

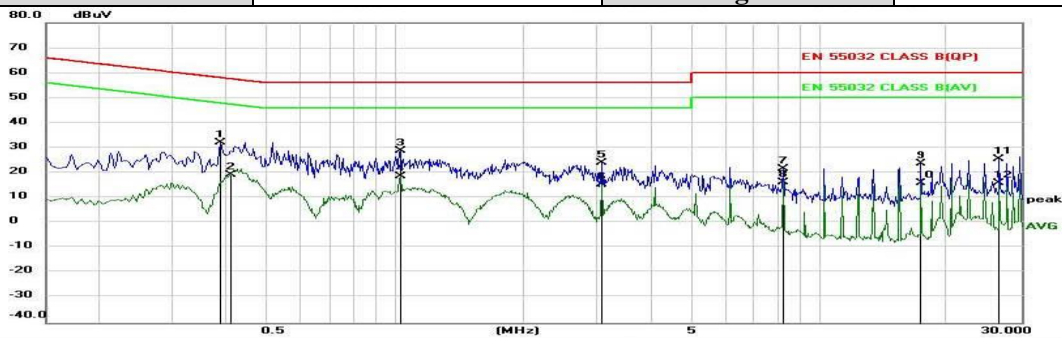


Site: LAB
 Limit: EN 55032 CLASS B(QP)
 EUT: DMX lighting controller
 M/N: SLIM1024
 Mode: SA
 Note:

Phase: L1
 Power: AC230V/50Hz
 Temperature: 24.0
 Humidity: 46.0 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.4335	26.31	10.19	36.50	57.19	-20.69	QP	
2		0.4335	16.33	10.19	26.52	47.19	-20.67	AVG	
3		1.0275	25.47	10.33	35.80	56.00	-20.20	QP	
4 *		1.0275	15.99	10.33	26.32	46.00	-19.68	AVG	
5		4.1055	18.88	11.14	30.02	56.00	-25.98	QP	
6		4.1055	11.16	11.14	22.30	46.00	-23.70	AVG	
7		8.2094	18.53	10.06	28.59	60.00	-31.41	QP	
8		8.2094	12.03	10.06	22.09	50.00	-27.91	AVG	
9		17.4525	18.03	10.34	28.37	60.00	-31.63	QP	
10		17.4525	10.54	10.34	20.88	50.00	-29.12	AVG	
11		24.6299	18.74	10.06	28.80	60.00	-31.20	QP	
12		24.6299	9.35	10.06	19.41	50.00	-30.59	AVG	

Model No.	SLIM 1024	Test Mode	SA
Environmental Conditions	24.0°C, 46.0% RH	Detector Function	Quasi-peak
Pol	Neutral	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

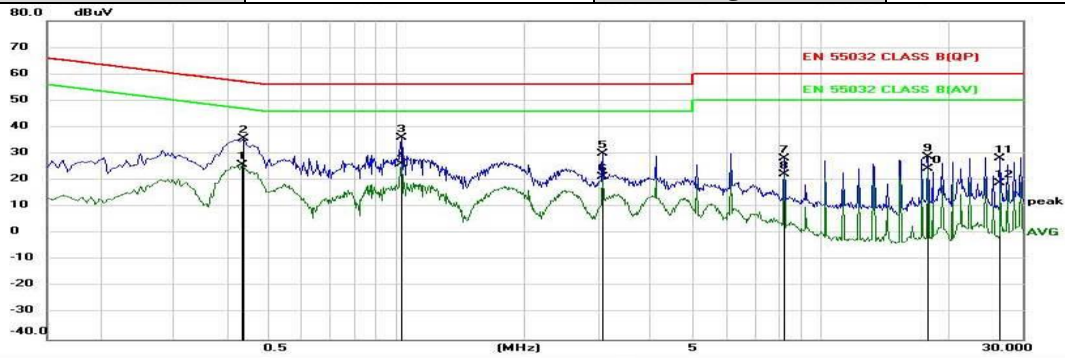


Site: LAB
 Limit: EN 55032 CLASS B(QP)
 EUT: DMX lighting controller
 M/N: SLIM1024
 Mode: SA
 Note:

Phase: N
 Power: AC230V/50Hz
 Temperature: 24.0
 Humidity: 46.0 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1 *		0.3885	22.01	10.17	32.18	58.10	-25.92	QP	
2		0.4083	9.13	10.17	19.30	47.68	-28.38	AVG	
3		1.0275	18.60	10.32	28.92	56.00	-27.08	QP	
4		1.0275	8.28	10.32	18.60	46.00	-27.40	AVG	
5		3.0795	13.82	10.15	23.97	56.00	-32.03	QP	
6		3.0795	5.18	10.15	15.33	46.00	-30.67	AVG	
7		8.2140	11.59	10.00	21.59	60.00	-38.41	QP	
8		8.2140	6.11	10.00	16.11	50.00	-33.89	AVG	
9		17.4480	13.11	10.63	23.74	60.00	-36.26	QP	
10		17.4480	5.19	10.63	15.82	50.00	-34.18	AVG	
11		26.6685	15.46	10.23	25.69	60.00	-34.31	QP	
12		26.6685	5.72	10.23	15.95	50.00	-34.05	AVG	

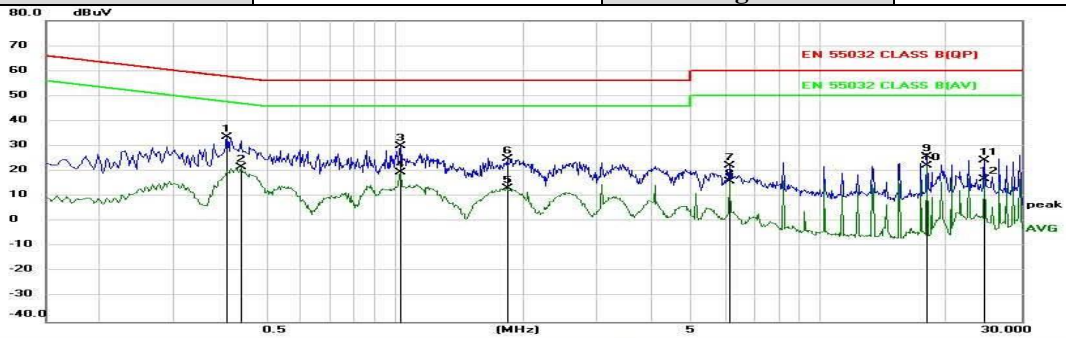
Model No.	SLIM 1024	Test Mode	SA+SD
Environmental Conditions	24.0°C, 46.0% RH	Detector Function	Quasi-peak
Pol	Line	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz



Site: LAB
 Limit: EN 55032 CLASS B (QP)
 EUT: DMX lighting controller
 M/N: SLIM1024
 Mode: SA+SD
 Note:
 Phase: L1
 Power: AC230V/50Hz
 Temperature: 24.0
 Humidity: 46.0 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.4335	15.78	10.19	25.97	47.19	-21.22	AVG	
2		0.4380	25.56	10.19	35.75	57.10	-21.35	QP	
3		1.0275	25.74	10.33	36.07	56.00	-19.93	QP	
4 *		1.0275	15.93	10.33	26.26	46.00	-19.74	AVG	
5		3.0795	19.86	10.19	30.05	56.00	-25.95	QP	
6		3.0795	11.20	10.19	21.39	46.00	-24.61	AVG	
7		8.2094	18.33	10.06	28.39	60.00	-31.61	QP	
8		8.2094	12.07	10.06	22.13	50.00	-27.87	AVG	
9		18.0015	18.40	10.33	28.73	60.00	-31.27	QP	
10		18.0015	13.94	10.33	24.27	50.00	-25.73	AVG	
11		26.6820	18.30	10.07	28.37	60.00	-31.63	QP	
12		26.6820	9.00	10.07	19.07	50.00	-30.93	AVG	

Model No.	SLIM 1024	Test Mode	SA+SD
Environmental Conditions	24.0°C, 46.0% RH	Detector Function	Quasi-peak
Pol	Neutral	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

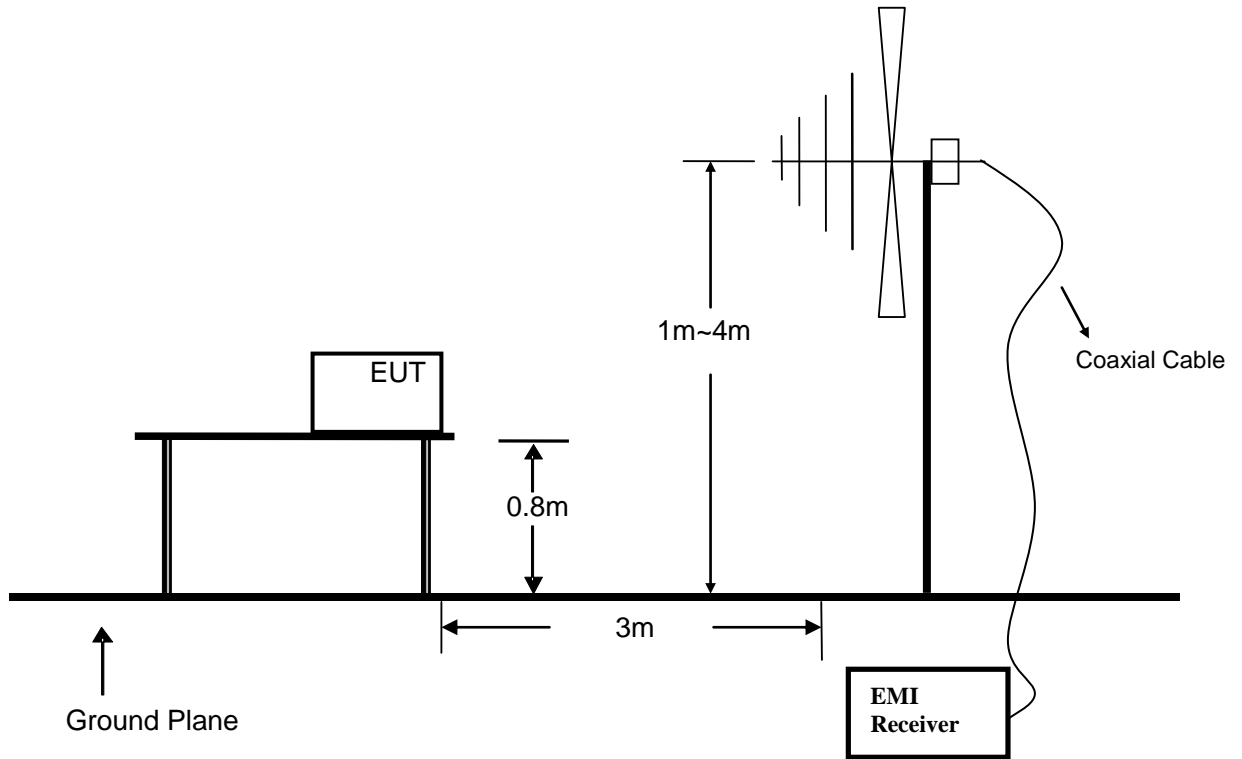


Site: LAB
 Limit: EN 55032 CLASS B (QP)
 EUT: DMX lighting controller
 M/N: SLIM1024
 Mode: SA+SD
 Note:
 Phase: N
 Power: AC230V/50Hz
 Temperature: 24.0
 Humidity: 46.0 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1 *		0.4020	23.59	10.17	33.76	57.81	-24.05	peak	
2		0.4335	11.47	10.18	21.65	47.19	-25.54	AVG	
3		1.0275	19.62	10.32	29.94	56.00	-26.06	peak	
4		1.0275	9.22	10.32	19.54	46.00	-26.46	AVG	
5		1.8195	2.88	10.28	13.16	46.00	-32.84	AVG	
6		1.8375	14.62	10.28	24.90	56.00	-31.10	peak	
7		6.1530	12.12	10.02	22.14	60.00	-37.86	peak	
8		6.1530	5.81	10.02	15.83	50.00	-34.17	AVG	
9		18.0015	15.13	10.71	25.84	60.00	-34.16	peak	
10		18.0015	11.46	10.71	22.17	50.00	-27.83	AVG	
11		24.6255	14.05	10.31	24.36	60.00	-35.64	peak	
12		24.6255	6.63	10.31	16.94	50.00	-33.06	AVG	

5. RADIATED EMISSION MEASUREMENT

5.1. Block Diagram of Test Setup



5.2. Measuring Standard

EN 55032: 2015

5.3. Radiated Emission Limits

EN 55032 Limits:

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Limits for radiated disturbance Blow 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dB μ V/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.
 (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

5.4.EUT Configuration on Test

The EN 55032 regulations test method must be used to find the maximum emission during radiated emission measurement.

5.5.Operating Condition of EUT

5.5.1.Turn on the power.

5.5.2.After that, let the EUT work in test mode (work) and measure it.

5.6.Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The bandwidth of the Receiver is set at 120kHz.

The frequency range from 30MHz to 1000MHz is investigated.

5.7.Test Results

PASS.

The test result please refer to the next page.

Model No.	SLIM 1024	Test Mode	PC
Environmental Conditions	24.1°C, 62.1% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz



Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: PC
 Note:

Polarization: **Vertical**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		101.1862	5.80	13.05	18.85	40.00	-21.15	QP			
2	*	119.9834	16.95	13.98	30.93	40.00	-9.07	QP			
3		140.6440	13.16	14.67	27.83	40.00	-12.17	QP			
4		167.9273	11.62	16.15	27.77	40.00	-12.23	QP			
5		207.5493	10.89	18.42	29.31	40.00	-10.69	QP			
6		296.5658	7.38	24.24	31.62	47.00	-15.38	QP			

Model No.	SLIM 1024	Test Mode	PC
Environmental Conditions	24.1°C, 62.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

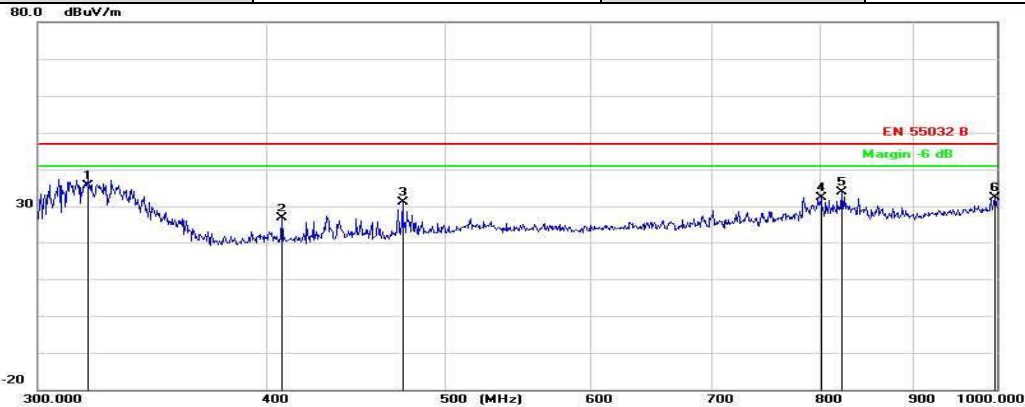


Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: PC
 Note:

Polarization: **Horizontal**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		101.1862	9.16	12.95	22.11	40.00	-17.89	QP			
2	*	119.9834	19.71	14.28	33.99	40.00	-6.01	QP			
3		216.3322	14.17	18.61	32.78	40.00	-7.22	QP			
4		228.0979	6.42	19.30	25.72	40.00	-14.28	QP			
5		240.5034	8.45	20.27	28.72	47.00	-18.28	QP			
6		292.4969	10.33	23.71	34.04	47.00	-12.96	QP			

Model No.	SLIM 1024	Test Mode	PC
Environmental Conditions	24.1 °C, 62.1% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

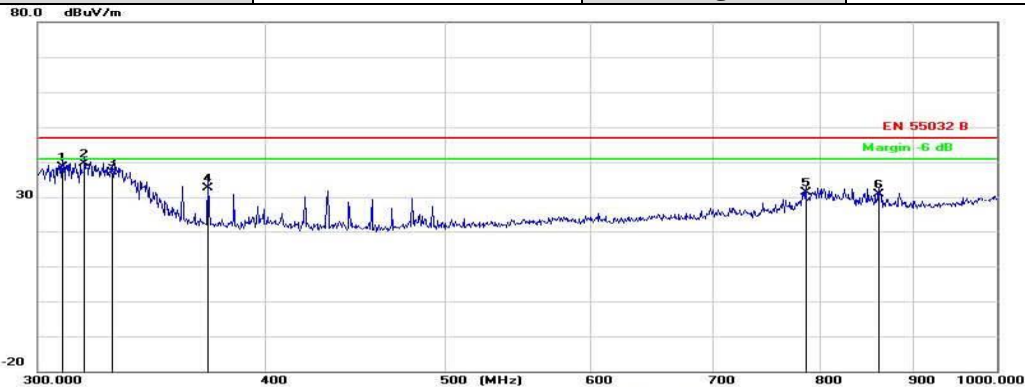


Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: PC
 Note:

Polarization: **Vertical**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1	*	319.3824	16.28	19.36	35.64	47.00	-11.36	QP			
2		407.8076	5.31	21.38	26.69	47.00	-20.31	QP			
3		474.0402	9.07	22.00	31.07	47.00	-15.93	QP			
4		801.2911	5.57	26.91	32.48	47.00	-14.52	QP			
5		822.7988	6.81	27.07	33.88	47.00	-13.12	QP			
6		997.5950	2.95	29.40	32.35	47.00	-14.65	QP			

Model No.	SLIM 1024	Test Mode	PC
Environmental Conditions	24.1 °C, 62.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz



Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: PC
 Note:

Polarization: **Horizontal**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		309.5395	20.21	18.41	38.62	47.00	-8.38	QP			
2	*	318.2309	20.64	19.00	39.64	47.00	-7.36	QP			
3		329.5382	17.93	19.32	37.25	47.00	-9.75	QP			
4		371.7010	12.37	20.23	32.60	47.00	-14.40	QP			
5		786.0031	4.73	26.62	31.35	47.00	-15.65	QP			
6		861.3170	3.47	27.41	30.88	47.00	-16.12	QP			

Model No.	SLIM 1024	Test Mode	SA
Environmental Conditions	24.1°C, 62.1% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

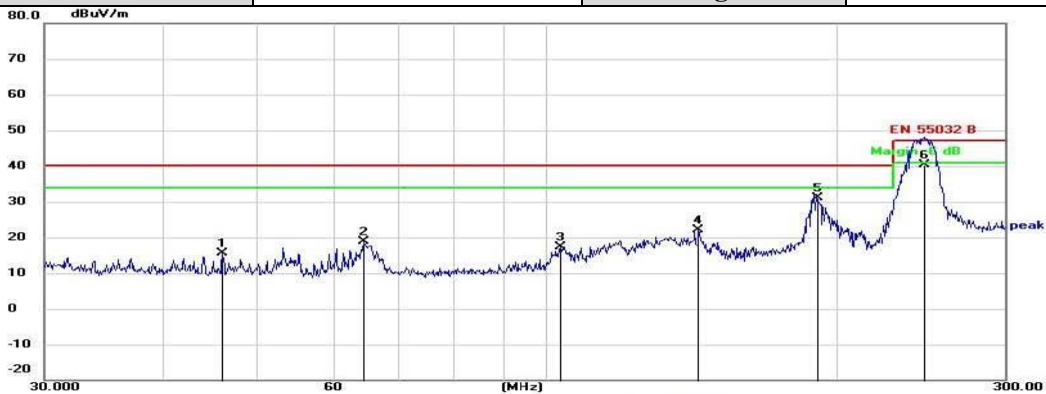


Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 M/N: SLIM1024
 Mode: SA
 Note:

Polarization: **Vertical**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		31.7045	14.99	12.82	27.81	40.00	-12.19	QP			
2		40.9375	16.75	12.89	29.64	40.00	-10.36	QP			
3		53.1033	18.48	12.10	30.58	40.00	-9.42	QP			
4		64.5835	17.40	11.79	29.19	40.00	-10.81	QP			
5		190.5993	10.92	17.03	27.95	40.00	-12.05	QP			
6	*	248.9552	19.86	20.70	40.56	47.00	-6.44	QP			

Model No.	SLIM 1024	Test Mode	SA
Environmental Conditions	24.1°C, 62.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

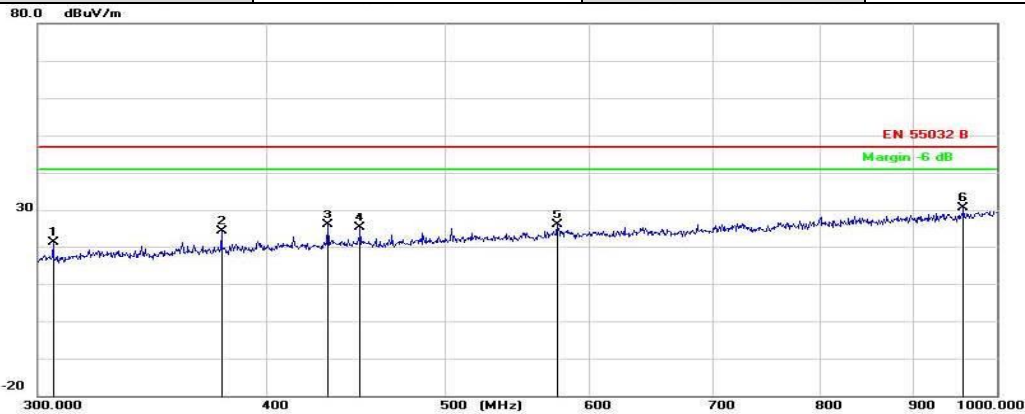


Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 M/N: SLIM1024
 Mode: SA
 Note: In the figure, the red limit is the QP value, and the blue curve is the PK value

Polarization: **Horizontal**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1(C)
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		46.0385	3.26	12.47	15.73	40.00	-24.27	QP			
2		64.4349	7.17	11.59	18.76	40.00	-21.24	QP			
3		103.5431	4.15	13.17	17.32	40.00	-22.68	QP			
4		143.9200	7.44	14.79	22.23	40.00	-17.77	QP			
5		190.5993	13.92	17.19	31.11	40.00	-8.89	QP			
6	*	247.2414	19.52	20.88	40.40	47.00	-6.60	QP			

Model No.	SLIM 1024	Test Mode	SA
Environmental Conditions	24.1 °C, 62.1% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

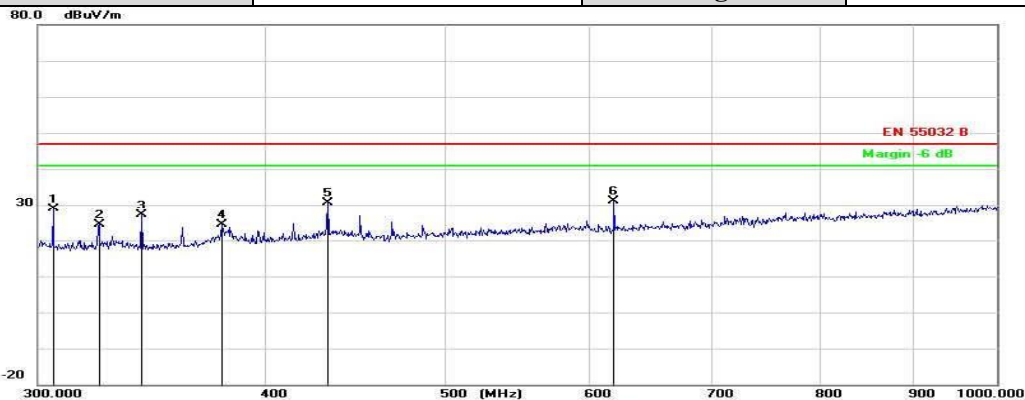


Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 M/N: SLIM1024
 Mode: SA
 Note:

Polarization: **Vertical**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		305.8351	2.78	18.25	21.03	47.00	-25.97	QP			
2		378.0193	3.91	20.25	24.16	47.00	-22.84	QP			
3		432.0694	4.70	21.16	25.86	47.00	-21.14	QP			
4		450.1232	2.83	22.22	25.05	47.00	-21.95	QP			
5		576.1314	2.22	23.65	25.87	47.00	-21.13	QP			
6	*	958.7365	1.76	28.89	30.65	47.00	-16.35	QP			

Model No.	SLIM 1024	Test Mode	SA
Environmental Conditions	24.1 °C, 62.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

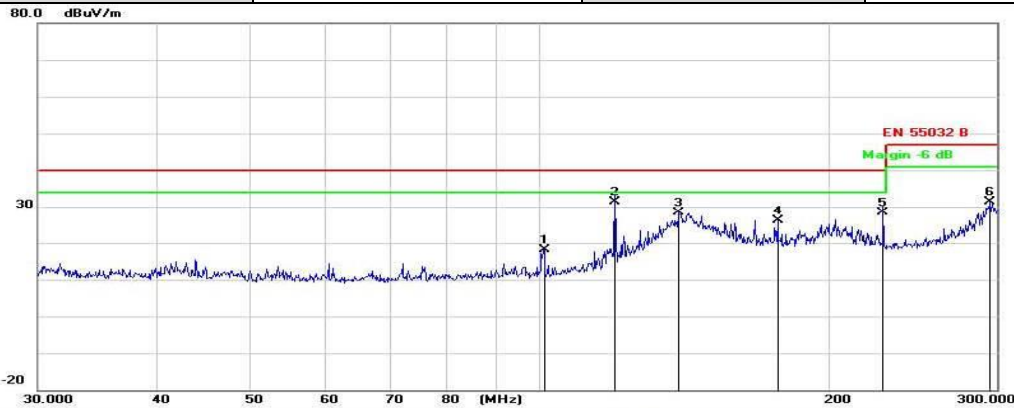


Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 M/N: SLIM1024
 Mode: SA
 Note:

Polarization: **Horizontal**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		305.8351	10.68	18.31	28.99	47.00	-18.01	QP			
2		324.0302	5.16	19.20	24.36	47.00	-22.64	QP			
3		342.0700	7.75	19.26	27.01	47.00	-19.99	QP			
4		378.0193	4.02	20.29	24.31	47.00	-22.69	QP			
5		432.0694	9.42	21.28	30.70	47.00	-16.30	QP			
6	*	618.5450	7.17	23.94	31.11	47.00	-15.89	QP			

Model No.	SLIM 1024	Test Mode	PC+SD
Environmental Conditions	24.1 °C, 62.1% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

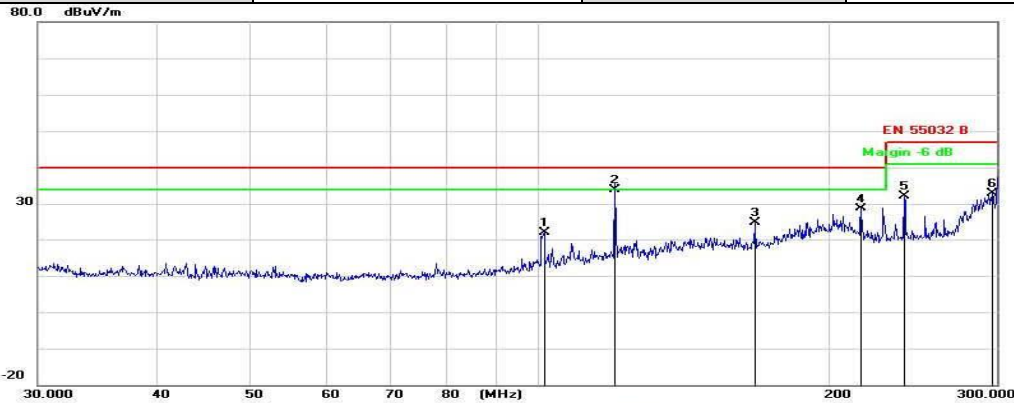


Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: PC + SD
 Note:

Polarization: **Vertical**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		101.1862	5.17	13.05	18.22	40.00	-21.78	QP			
2	*	119.9834	17.35	13.98	31.33	40.00	-8.67	QP			
3		139.9978	13.70	14.64	28.34	40.00	-11.66	QP			
4		177.4685	9.64	16.60	26.24	40.00	-13.76	QP			
5		228.0979	9.15	19.14	28.29	40.00	-11.71	QP			
6		295.2033	7.16	24.13	31.29	47.00	-15.71	QP			

Model No.	SLIM 1024	Test Mode	PC+SD
Environmental Conditions	24.1 °C, 62.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

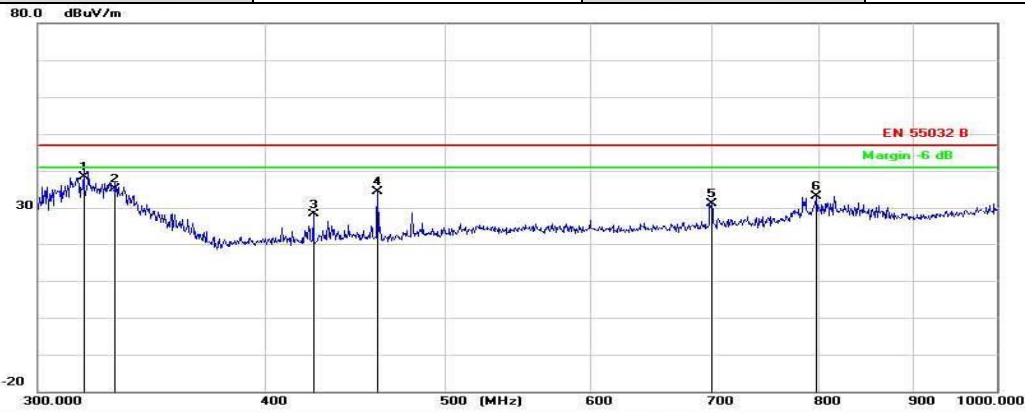


Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: PC + SD
 Note:

Polarization: **Horizontal**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		101.1862	9.04	12.95	21.99	40.00	-18.01	QP			
2	*	119.9834	19.65	14.28	33.93	40.00	-6.07	QP			
3		167.9273	8.22	16.51	24.73	40.00	-15.27	QP			
4		216.3322	9.96	18.61	28.57	40.00	-11.43	QP			
5		239.9503	11.79	20.23	32.02	47.00	-14.98	QP			
6		296.5658	8.77	24.01	32.78	47.00	-14.22	QP			

Model No.	SLIM 1024	Test Mode	PC+SD
Environmental Conditions	24.1°C, 62.1% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz



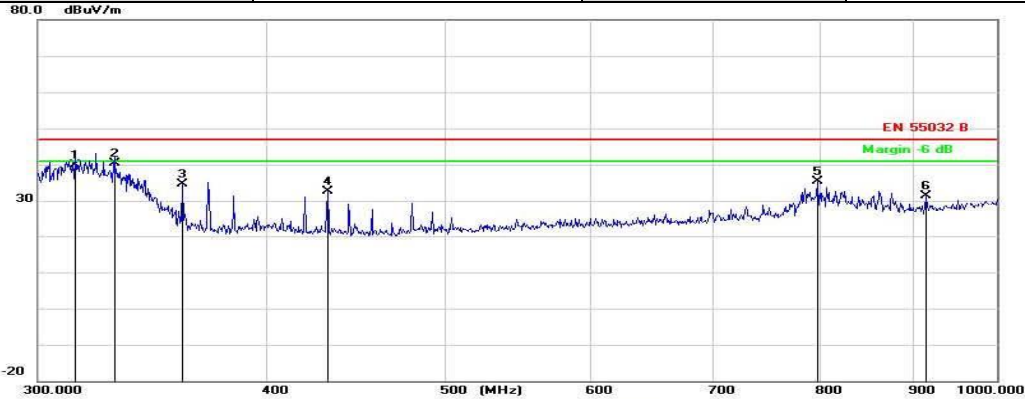
Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: PC + SD
 Note:

Polarization: **Vertical**
 Power: AC230V/50Hz
 Distance: 3m

Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1	*	317.8480	19.09	19.18	38.27	47.00	-8.73	QP			
2		330.7306	15.60	19.49	35.09	47.00	-11.91	QP			
3		424.3364	7.02	21.07	28.09	47.00	-18.91	QP			
4		459.4310	12.58	21.76	34.34	47.00	-12.66	QP			
5		699.3668	6.41	24.84	31.25	47.00	-15.75	QP			
6		796.4819	6.37	26.81	33.18	47.00	-13.82	QP			

Model No.	SLIM 1024	Test Mode	PC+SD
Environmental Conditions	24.1°C, 62.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz



Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: PC + SD
 Note:

Polarization: **Horizontal**
 Power: AC230V/50Hz
 Distance: 3m

Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		314.4224	21.04	18.74	39.78	47.00	-7.22	QP			
2	*	330.3327	21.11	19.31	40.42	47.00	-6.58	QP			
3		359.8123	14.69	19.90	34.59	47.00	-12.41	QP			
4		432.0694	11.41	21.28	32.69	47.00	-14.31	QP			
5		797.4414	8.45	26.82	35.27	47.00	-11.73	QP			
6		914.7596	3.14	28.16	31.30	47.00	-15.70	QP			

Model No.	SLIM 1024	Test Mode	SA+SD
Environmental Conditions	24.1 °C, 62.1% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz



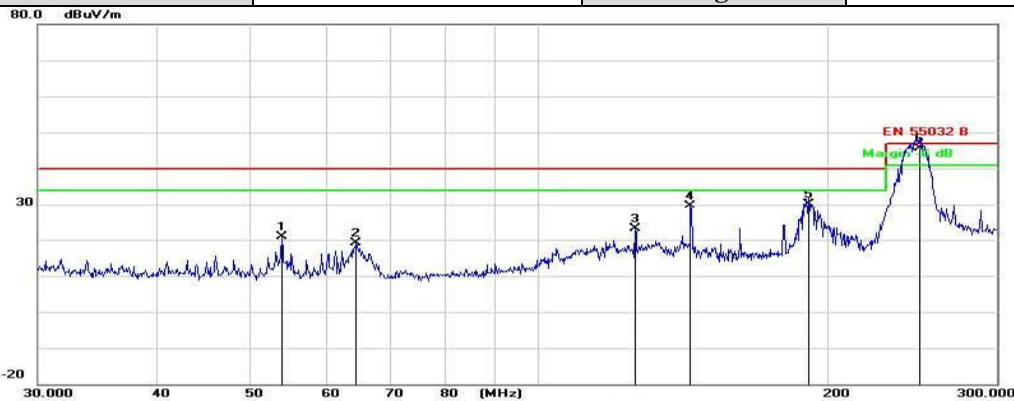
Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 M/N: SLIM1024
 Mode: SA + SD
 Note:

Polarization: **Vertical**
 Power: AC230V/50Hz
 Distance: 3m

Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		31.7045	14.25	12.82	27.07	40.00	-12.93	QP			
2		40.9375	17.33	12.89	30.22	40.00	-9.78	QP			
3		53.9661	19.10	11.92	31.02	40.00	-8.98	QP			
4		64.4349	16.35	11.78	28.13	40.00	-11.87	QP			
5		143.9200	12.55	14.79	27.34	40.00	-12.66	QP			
6	*	246.6728	19.98	20.55	40.53	47.00	-6.47	QP			

Model No.	SLIM 1024	Test Mode	SA+SD
Environmental Conditions	24.1 °C, 62.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz



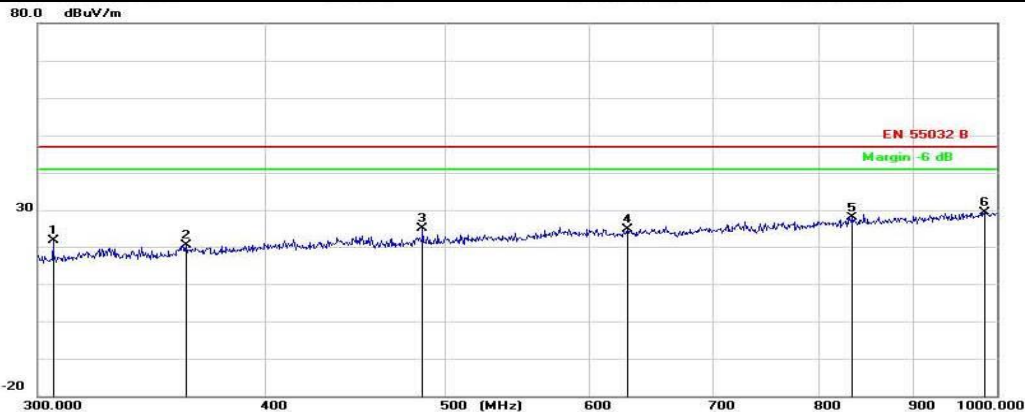
Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 M/N: SLIM1024
 Mode: SA + SD
 Note:

Polarization: **Horizontal**
 Power: AC230V/50Hz
 Distance: 3m

Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		53.9661	8.84	12.11	20.95	40.00	-19.05	QP			
2		64.5835	7.47	11.60	19.07	40.00	-20.93	QP			
3		125.9277	8.77	14.43	23.20	40.00	-16.80	QP			
4		143.9200	14.89	14.79	29.68	40.00	-10.32	QP			
5		190.5993	12.86	17.19	30.05	40.00	-9.95	QP			
6	*	248.9552	24.68	21.06	45.74	47.00	-1.26	QP			

Model No.	SLIM 1024	Test Mode	SA+SD
Environmental Conditions	24.1°C, 62.1% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz

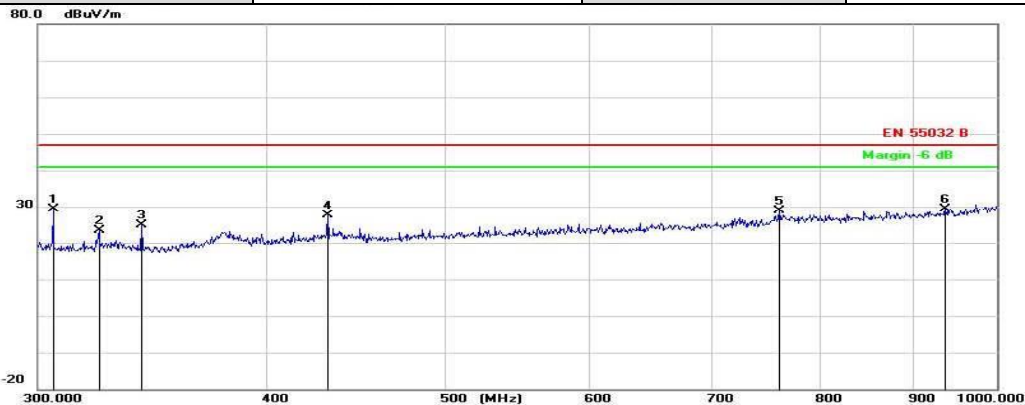


Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: SA + SD
 Note:

Polarization: **Vertical**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		305.8351	3.48	18.25	21.73	47.00	-25.27	QP		
2		361.5492	0.10	20.25	20.35	47.00	-26.65	QP		
3		486.1784	2.45	22.49	24.94	47.00	-22.06	QP		
4		629.0594	0.27	24.33	24.60	47.00	-22.40	QP		
5		832.7649	0.79	27.16	27.95	47.00	-19.05	QP		
6	*	984.4702	0.25	29.20	29.45	47.00	-17.55	QP		

Model No.	SLIM 1024	Test Mode	SA+SD
Environmental Conditions	24.1°C, 62.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Loki Chen	Test Voltage	230V/50Hz



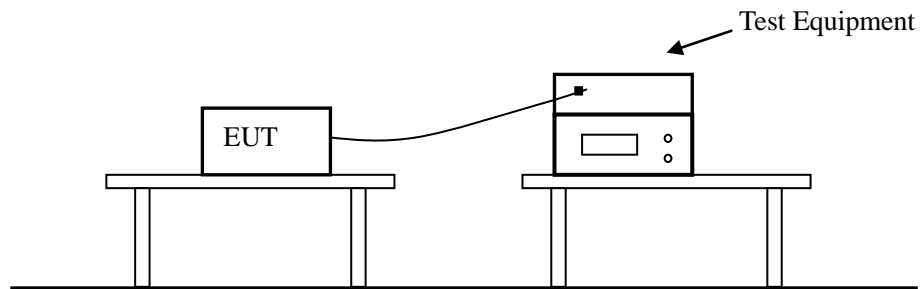
Site: LAB
 Limit: EN 55032 B
 EUT: DMX light controller
 MN: SLIM1024
 Mode: SA + SD
 Note:

Polarization: **Horizontal**
 Power: AC230V/50Hz
 Distance: 3m
 Temperature: 24.1
 Humidity: 62.1 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1	*	305.8351	11.04	18.31	29.35	47.00	-17.65	QP		
2		324.0302	4.24	19.20	23.44	47.00	-23.56	QP		
3		342.0700	5.65	19.26	24.91	47.00	-22.09	QP		
4		432.0694	6.44	21.28	27.72	47.00	-19.28	QP		
5		761.7797	2.94	25.90	28.84	47.00	-18.16	QP		
6		937.0538	0.74	28.53	29.27	47.00	-17.73	QP		

6. HARMONIC CURRENT EMISSION MEASUREMENT

6.1. Block Diagram of Test Setup



6.2. Test Standard

EN 61000-3-2: 2014

6.3. Operation Condition of EUT

Same as Section 4.4, except the test setup replaced as Section 6.1.

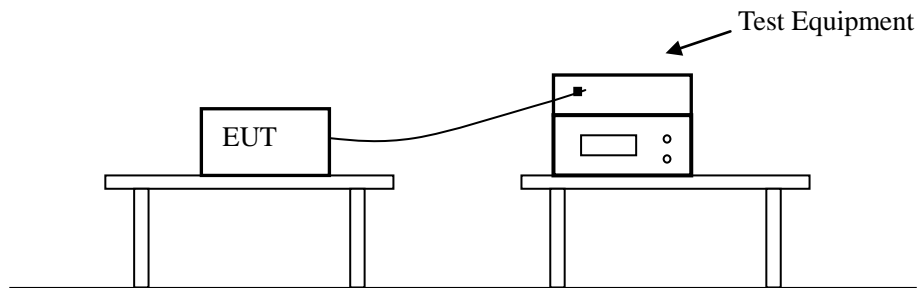
6.4. Test Results

PASS.

Because power of EUT less than 75W, According standard EN 61000-3-2, Harmonic current unnecessary to test.

7. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

7.1. Block Diagram of Test Setup



7.2. Measuring Standard

EN 61000-3-3: 2013

7.3. Operation Condition of EUT

Same as Section 4.4, except the test setup replaced as Section 7.1.

7.4. Test Results

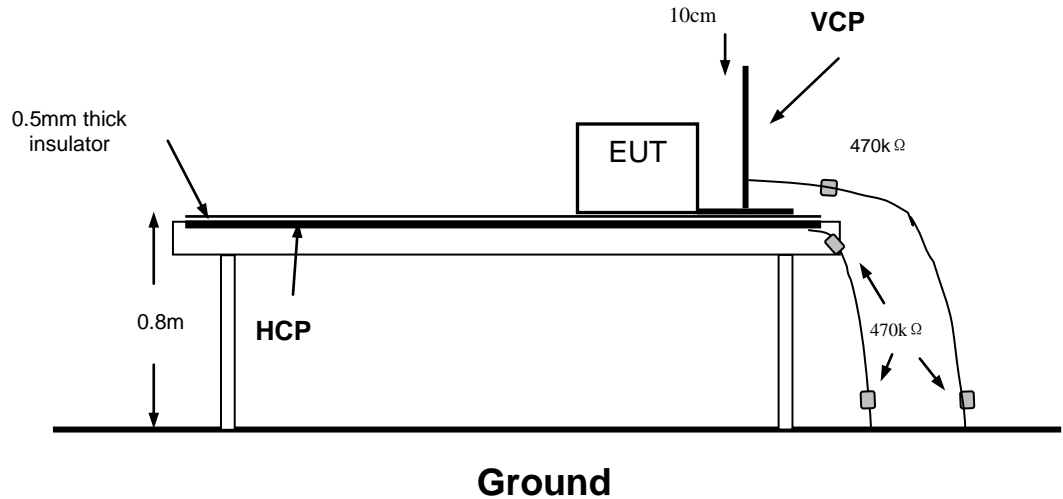
PASS.

Overall Result: PASS	Notes: Measurement method - Voltage
--------------------------------	--

	Pst	dc (%)	dmax (%)	d(t) > 3.3%(ms)
Limit	1.000	3.300	4.000	500
Reading 1	0.090	0.005	0.241	0

8. ELECTROSTATIC DISCHARGE IMMUNITY TEST

8.1. Block Diagram of Test Setup



8.2. Test Standard

EN 55024: 2010 (EN 61000-4-2: 2009, Severity Level: 3 / Air Discharge: $\pm 8\text{KV}$, Level: 2 / Contact Discharge: $\pm 4\text{KV}$)

8.3. Severity Levels and Performance Criterion

8.3.1. Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	± 2	± 2
2.	± 4	± 4
3.	± 6	± 8
4.	± 8	± 15
X	Special	Special

8.3.2. Performance Criterion: B

8.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.3.

8.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 3.4. Except the test set up replaced by Section 8.1.

8.6. Test Procedure

8.6.1. Air Discharge

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

8.6.2. Contact Discharge

All the procedure shall be same as Section 8.6.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

8.6.3. Indirect Discharge For Horizontal Coupling Plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

8.6.4. Indirect Discharge For Vertical Coupling Plane

At least 10 single discharge (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

8.7. Test Results

PASS.

Please refer to the following pages

Electrostatic Discharger Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	CHROMATEQ SARL		
EUT	DMX Lighting Controller	Temperature	23.0°C
M/N	SLIM 1024	Humidity	48.0%
Criterion	B	Test Engineer	Loki Chen
Test Mode	work		

Air Discharge

Test Points	Test Levels			Results		
	± 2KV	± 4KV	± 8KV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

Contact Discharge

Test Points	Test Levels		Results		
	± 2 kV	±4 kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

Discharge To Horizontal Coupling Plane

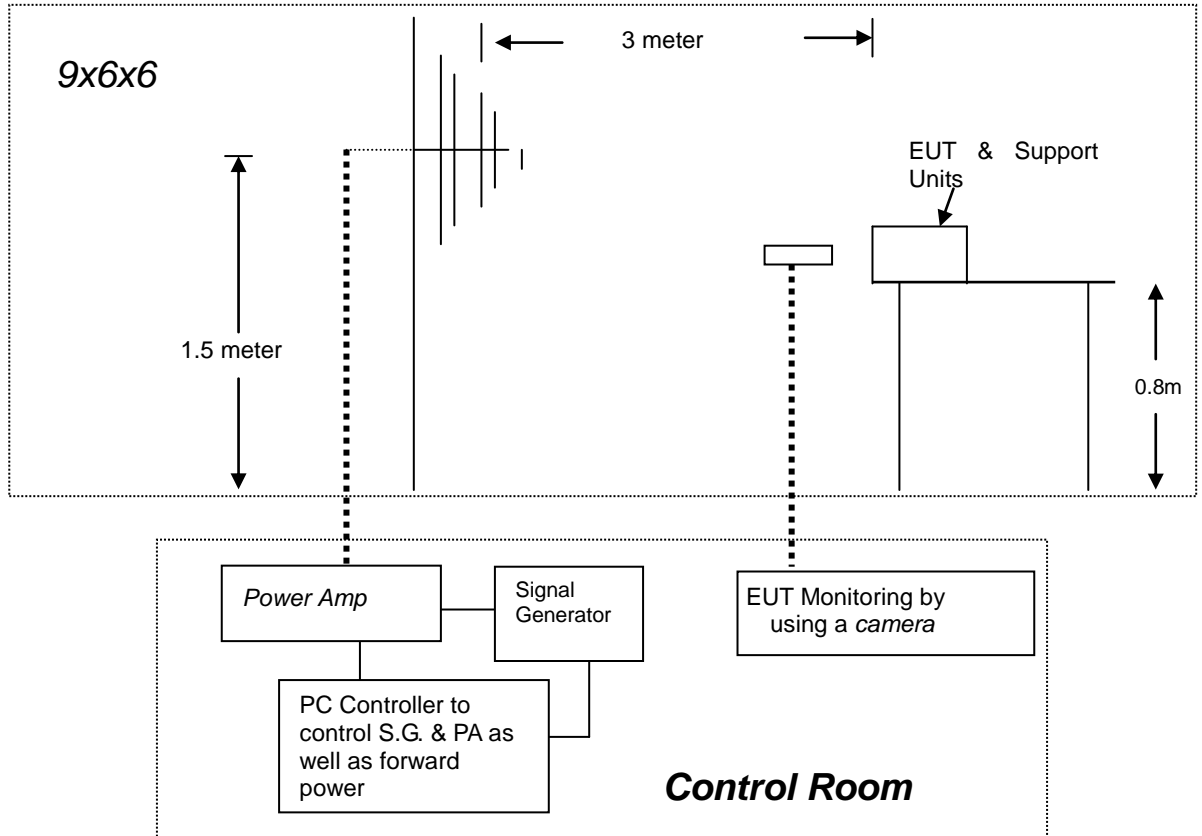
Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

Discharge To Vertical Coupling Plane

Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

9. RF FIELD STRENGTH SUSCEPTIBILITY TEST

9.1. Block Diagram of Test



9.2. Test Standard

EN 55024: 2010 (EN 61000-4-3: 2006+A1: 2010 Severity Level: 2, 3V / m)

9.3. Severity Levels and Performance Criterion

9.3.1. Severity Levels

Level	Field Strength (V/m)
1.	1
2.	3
3.	10
X.	Special

9.3.2. Performance Criterion: A

9.4.EUT Configuration on Test

The configuration of the EUT is same as Section 4.3.

9.5.Operating Condition of EUT

Same as radiated emission measurement, which is listed in Section 5.1, except the test setup replaced as Section 9.1.

9.6.Test Procedure

The EUT are placed on a table, which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna, which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna is set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD Recording is used to monitor its screen. All the scanning conditions are as following:

Condition of Test	Remark
-----	-----
1. Fielded Strength	3V/m (Severity Level 2)
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80-1000MHz
4. Sweep time of radiated	0.0015 Decade/s
5. Dwell Time	3 Sec.

9.7.Test Results

PASS.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

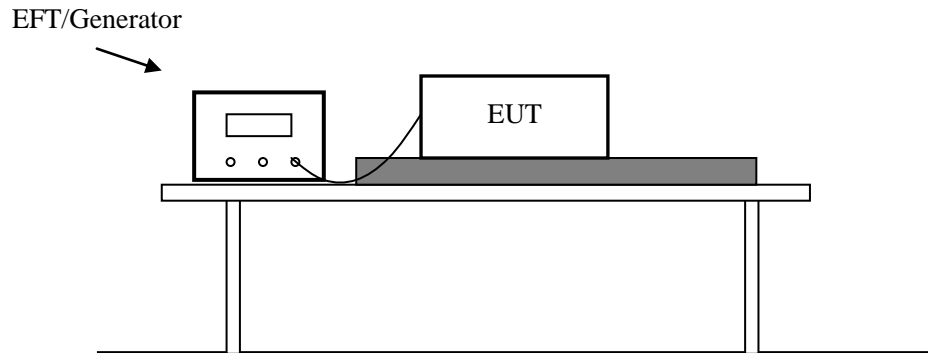
Standard	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3		
Applicant	CHROMATEQ SARL		
EUT	DMX Lighting Controller	Temperature	24.0°C
M/N	SLIM 1024	Humidity	46.0%
		Criterion	A
Test Mode	work	Test Engineer	Loki Chen
Frequency Range	80 MHz to 1000 MHz	Field Strength	3 V/m
Modulation	<input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80%		
Steps	1%		

	Horizontal	Vertical
Front	PASS	PASS
Right	PASS	PASS
Rear	PASS	PASS
Left	PASS	PASS

Note:N/A

10. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

10.1. Block Diagram of Test Setup



10.2. Test Standard

EN 55024: 2010 (EN 61000-4-4: 2012, Severity Level, Level 2: 1KV)

10.3. Severity Levels and Performance Criterion

10.3.1. Severity level

Level	Open Circuit Output Test Voltage $\pm 10\%$	
	On AC POWER SUPPLY Lines	On I/O (Input/Output) Signal data and control lines
1.	0.5 KV	0.25 KV
2.	1 KV	0.5 KV
3.	2 KV	1 KV
4.	4 KV	2 KV
X	Special	Special

10.3.2. Performance Criterion: B

10.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3.3

10.5. Operating Condition of EUT

10.5.1. Setup the EUT as shown in Section 10.1.

10.5.2. Turn on the power of all equipments.

10.5.3. Let the EUT work in test mode (work) and measure it.

10.6. Test Procedure

The EUT is put on the table, which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

10.6.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device, which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

10.6.2. For signal lines and control lines ports: No I/O ports. It's unnecessary to test.

10.6.3. For DC output line ports: It's unnecessary to test.

10.7. Test Results

PASS.

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

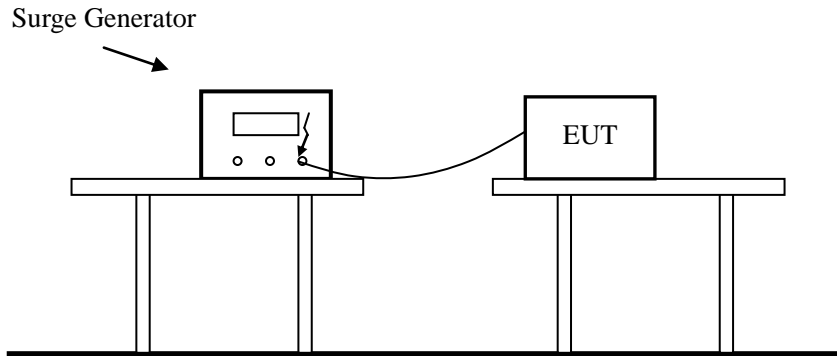
Standard	<input type="checkbox"/> IEC 61000-4-4 <input checked="" type="checkbox"/> EN 61000-4-4		
Applicant	CHROMATEQ SARL		
EUT	DMX Lighting Controller	Temperature	24.0°C
M/N	SLIM 1024	Humidity	48.0%
Test Mode	work	Criterion	B
Test Engineer	Loki Chen		

Line	Test Voltage	Result (+)	Result (-)
L	1KV	PASS	PASS
N	1KV	PASS	PASS
L-N	1KV	PASS	PASS

Note:

11. SURGE IMMUNITY TEST

11.1. Block Diagram of Test Setup



11.2. Test Standard

EN 55024: 2010 (EN 61000-4-5: 2014, Severity Level: Line to Line: Level 2, 1.0KV, Line to Earth: Level 3, 2.0KV)

11.3. Severity Levels and Performance Criterion

11.3.1. Severity level

Severity Level	Open-Circuit Test Voltage (KV)
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

11.3.2. Performance Criterion: B

11.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3.3

11.5. Operating Condition of EUT

- 11.5.1. Setup the EUT as shown in Section 11.1.
- 11.5.2. Turn on the power of all equipments.
- 11.5.3. Let the EUT work in test mode (work) and measure it.

11.6. Test Procedure

- 11.6.1. Set up the EUT and test generator as shown on Section 11.1.
- 11.6.2. For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 11.6.3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 11.6.4. Different phase angles are done individually.
- 11.6.5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11.7. Test Results

PASS.

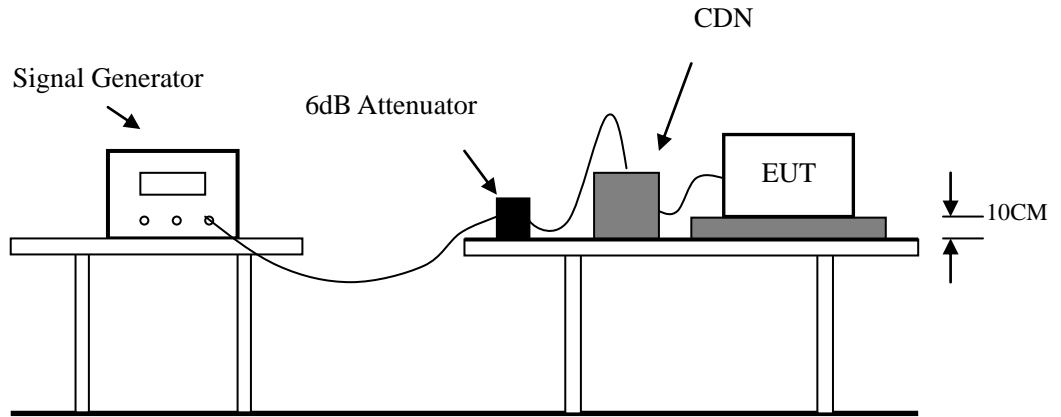
Please refer to the following page.

Surge Immunity Test Result			
Standard	<input type="checkbox"/> IEC 61000-4-5 <input checked="" type="checkbox"/> EN 61000-4-5		
Applicant	CHROMATEQ SARL		
EUT	DMX Lighting Controller	Temperature	24.0°C
M/N	SLIM 1024	Humidity	46.0%
Test Mode	work	Criterion	B
Test Engineer	Loki Chen		

Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Result
L-N	+	90°	5	1.0	PASS
	-	270°	5	1.0	PASS
Note					

12. INJECTED CURRENTS SUSCEPTIBILITY TEST

12.1. Block Diagram of Test Setup



12.2. Test Standard

EN 55024: 2010(EN 61000-4-6: 2014, Severity Level: Level 2, 3V (rms), (0.15MHz ~ 80MHz))

12.3. Severity Levels and Performance Criterion

12.3.1. Severity level

Level	Field Strength (V)
1	1
2	3
3	10
X	Special

12.3.2. Performance Criterion: A

12.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3.3

12.5. Operating Condition of EUT

- 12.5.1. Setup the EUT as shown in Section 12.1.
- 12.5.2. Turn on the power of all equipments.
- 12.5.3. Let the EUT work in test mode (work) and measure it.

12.6. Test Procedure

- 12.6.1. Set up the EUT, CDN and test generators as shown on Section 12.1.
- 12.6.2. Let the EUT work in test mode and measure it.
- 12.6.3. The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 12.6.4. The disturbance signal described below is injected to EUT through CDN.
- 12.6.5. The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 12.6.6. The frequency range is swept from 150kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
- 12.6.7. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 12.6.8. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

12.7. Test Results

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results

Standard	<input type="checkbox"/> IEC 61000-4-6 <input checked="" type="checkbox"/> EN 61000-4-6		
Applicant	CHROMATEQ SARL		
EUT	DMX Lighting Controller	Temperature	25.0°C
M/N	SLIM 1024	Humidity	49.0%
Test Mode	work	Criterion	A
Test Engineer	Loki Chen		

Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
0.15 ~ 10	AC Mains	3V	A	PASS
10 ~ 30	AC Mains	3-1V	A	PASS
30 ~ 80	AC Mains	1V	A	PASS

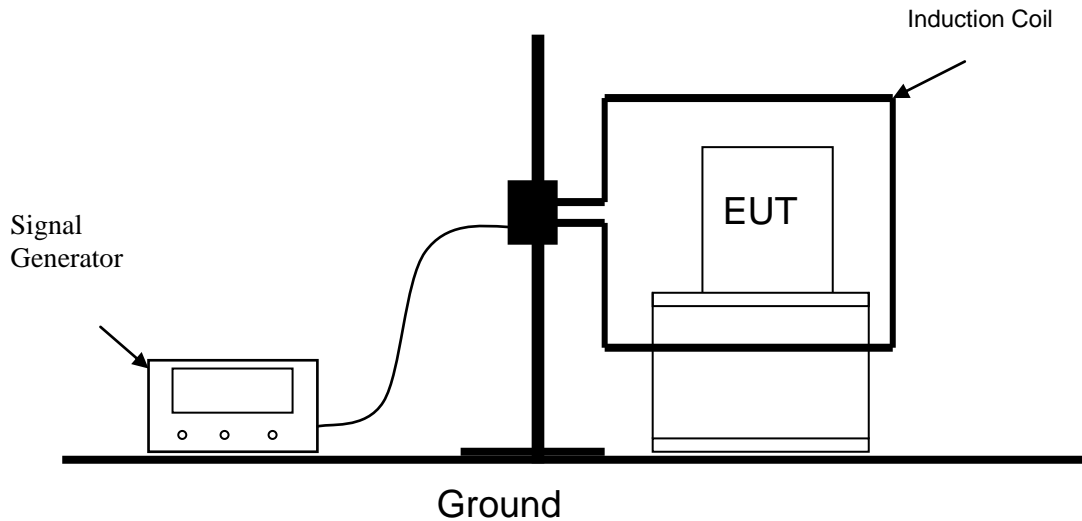
Remark:

1. Modulation Signal: 1kHz 80% AM
2. Measurement Equipment :
 - Simulator: CIT-10 (FRANKONIA)
 - CDN : CDN-M2 (FRANKONIA)
 - CDN-M3 (FRANKONIA)

Note:

13. MAGNETIC FIELD SUSCEPTIBILITY TEST

13.1. Block Diagram of Test Setup



13.2. Test Standard

EN 55024: 2010 (EN 61000-4-8: 2010, Severity Level: Level 1, 1A / m)

13.3. Severity Levels and Performance Criterion

13.3.1. Severity Levels

Level	Field Strength (A/m)
1	1
2	3
3	10
4	30
5	100
X	Special

13.3.2. Performance Criterion: A

13.4. EUT Configuration on Test

The configuration of the EUT is same as Section 3.3

13.5. Test Procedure

The EUT is placed in the middle of a induction coil (1*1m), under which is a 1*1*0.1m (high) table, this small table is also placed on a larger table, 0.8 m above the ground. Both horizontal and vertical polarization of the induction coil is set on test, so that each side of the EUT is affected by the magnetic field. Also can reach the same aim by change the position of the EUT.

13.6. Test Results

PASS.

Please refer to the following page.

Magnetic Field Immunity Test Result

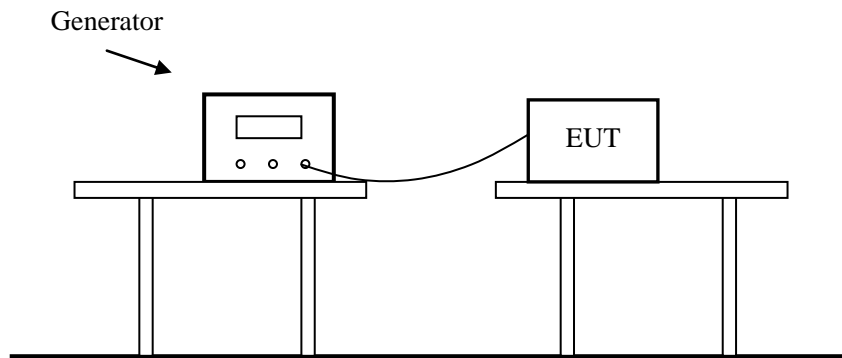
Standard	<input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8		
Applicant	CHROMATEQ SARL		
EUT	DMX Lighting Controller	Temperature	24.0°C
M/N	SLIM 1024	Humidity	46.0%
Test Mode	work	Criterion	A
Test Engineer	Loki Chen		

Test Level (A/M)	Testing Duration	Coil Orientation	Criterion	Result
1	5 mins	X	A	PASS
1	5 mins	Y	A	PASS
1	5 mins	Z	A	PASS

Note:

14. VOLTAGE DIPS AND INTERRUPTIONS TEST

14.1. Block Diagram of Test Setup



14.2. Test Standard

EN 55024: 2010 (EN 61000-4-11: 2004)

14.3. Severity Levels and Performance Criterion

14.3.1. Severity level

Test Level (% UT)	Voltage dip and short interruptions (% UT)	Duration (in period)
0	100	0.5
70	30	25
0	100	250

14.3.2. Performance Criterion: B&C

14.4. EUT Configuration on Test

The configuration of EUT is listed in Section 4.3.

14.5. Operating Condition of EUT

- 14.5.1. Setup the EUT as shown in Section 14.1.
- 14.5.2. Turn on the power of all equipments.
- 14.5.3. Let the EUT work in test mode (work) and measure it.

14.6. Test Procedure

- 14.6.1. Set up the EUT and test generator as shown on Section 14.1.
- 14.6.2. The interruptions are introduced at selected phase angles with specified duration.
- 14.6.3. Record any degradation of performance.

14.7. Test Results

PASS.

Please refer to the following page.

Voltage Dips And Interruptions Test Results

Standard	<input type="checkbox"/> IEC 61000-4-11 <input checked="" type="checkbox"/> EN 61000-4-11		
Applicant	CHROMATEQ SARL		
EUT	DMX Lighting Controller	Temperature	24.0°C
M/N	SLIM 1024	Humidity	46.0%
Test Mode	work	Criterion	B&C
Test Engineer	Loki Chen		

Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Criterion	Result
0	100	0.5P	B	PASS
70	30	25P	C	PASS
0	100	250P	C	PASS

Note:

15. PHOTOGRAPHS



Fig. 1

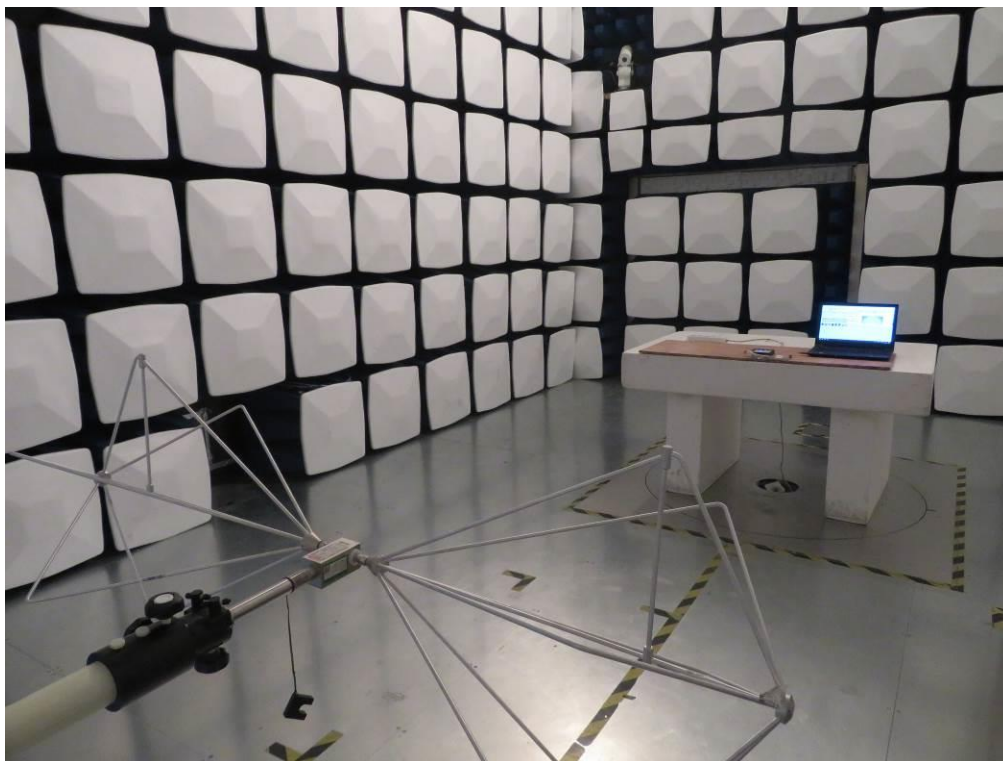


Fig. 2

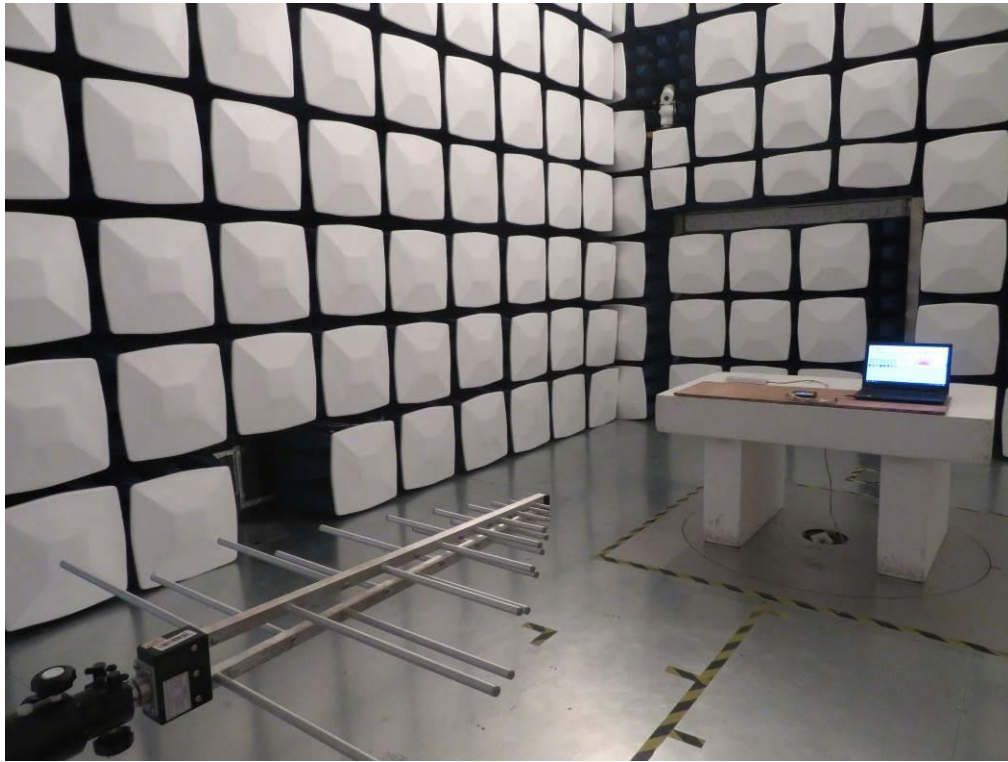


Fig. 3

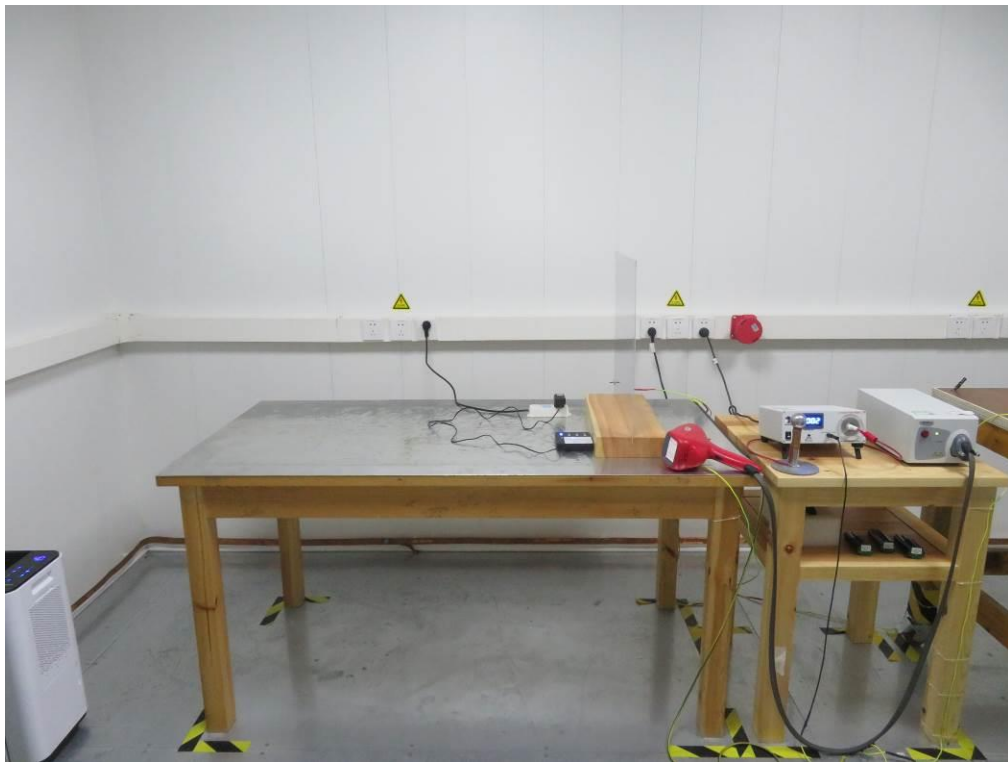


Fig. 4



Fig. 5

16. EXTERNAL AND INTERNAL PHOTOS OF THE EUT



Fig. 1



Fig. 2

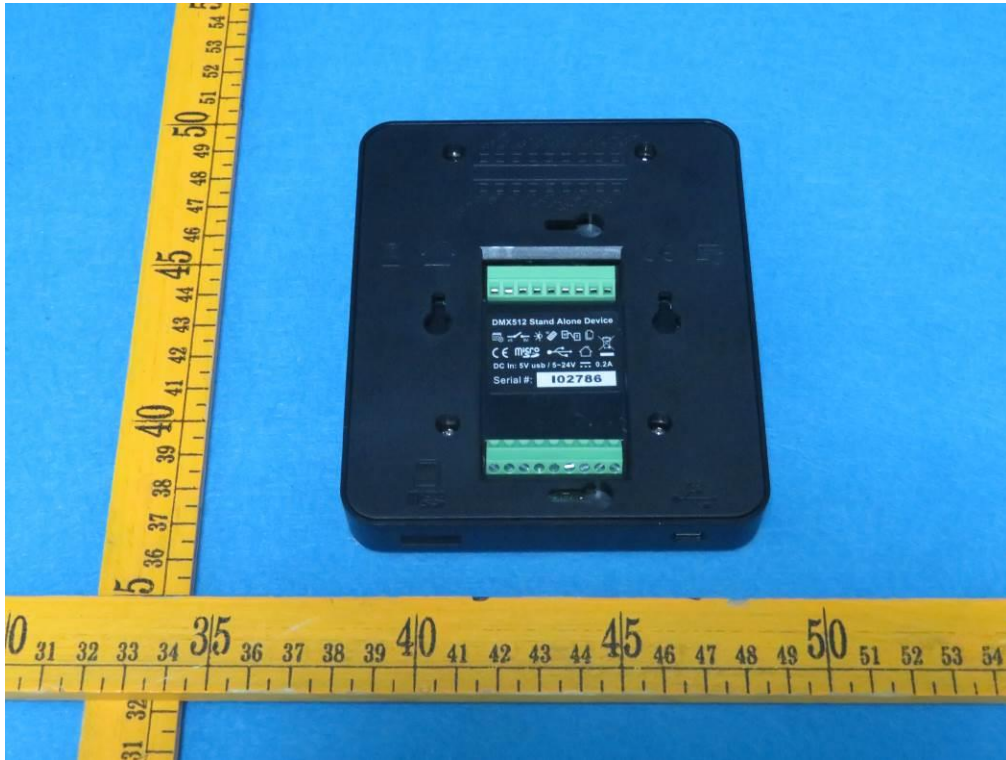


Fig. 3



Fig. 4

-----THE END OF TEST REPORT-----