FCC Verification Test Report

For

Chengdu XGimi Technology Co.,Ltd.

EUT Name: LED Projector

Model No: XE10F

Brand Name: XGIMI

Prepared By:

DongGuan NTEK Testing Technology Co., Ltd.

Add: 5/F, Building 11, Creative Industry Center Park, No. 34 Guantai Road,

Guancheng District, Dong Guan, 523000, P.R.China

Date of Receipt: Sep 25, 2015

Date of Test: Sep 26~ Oct 07,2015

Date of Issue: Oct 07, 2015

Test Result: Pass

Verification of Compliance

Client Information:

Applicant: Chengdu XGimi Technology Co.,Ltd.

Applicant add.: 5F,Building A7,Tianfu Software Park, Tianfu Avenue,Hi-tech Zone,Chengdu,China.

EUT Information:

EUT Name : LED Projector

Model No.: XE10F

Derivative model: Refer to page 5

Brand Name: XGIMI

Test procedure used: FCC Part 15 Subpart B Class B

This device described above has been tested by DongGuan NTEK Testing Technology Co., Ltd.and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Reviewed by: Yandy . Xie
Yandy Xie

Approved by: Lori Mei
Lori Mei

1 Contents

2 Test Summary

Test	Test Requirement	Test Method	Criterion	Result
Mains Terminals Disturbance Voltage, 150kHz to 30MHz	FCC Part 15 Subpart B	FCC Part 15 Subpart B ANSI C63.4: 2009	Limits	PASS
Radiated Emissions 30MHz to 1GHz	FCC Part 15 Subpart B	FCC Part 15 Subpart B ANSI C63.4: 2009	Limits	PASS
Radiated Emission above 1 GHz	FCC Part 15 Subpart B	FCC Part 15 Subpart B ANSI C63.4: 2009	Limits	PASS
Remark: None.				
Model description: According to the declaration of the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference being the model names. Therefore only one model XE10F was tested in this report.				

2.1 Measurement Uncertainty

The report uncertainty of measurement **y** ± **U**, where expended uncertainty **U** is based on a standard uncertainty Multiplied by a coverage factor of **k=2** , providing a level of confidence of approximately 95% .

No.	Item	Frequency Range	U , Value
1	Power Vertical Conducted Emission	150KHz~30MHz	1.20 dB
2	Radiated Emission Test	30MHz~1GHz	3.30 dB
3	Radiated Emission Test	1GHz~18GHz	3.30 dB

3 General Information

3.1 General Description of EUT

Manufacturer:	(1) FuJian Ruichi electronic technology CO., LTD. (2) TCL King electrical appliances (Chengdu) CO., LTD.
Manufacturer Address:	(1) No. C-09 land of the first planning about special automobile foundation in Quanzhou city of China. (2) Chengdu high-tech industrial development zone (west park),Chengdu, Sichuan,China
EUT Name:	LED Projector
Model No:	XE10F
Brand Name:	XGIMI
Derivative No:	XE08F,XE09F,XE11F,XE12F,XE13F,XE14F,XE15F,XE16F,XE17F,XE18F, XE19F,XE20F,XE21F,XE22F,XE23F,XE24F,XE25F,XE26F,XE27F,XE28F, XE29F,XE30F,XE31F,XE32F,XE33F,XE34F,XE35F,XE36F,XE37F,WE58F, WE59F,WE60F,WE61F,WE62F,WE63F,WE64F,WE65F,WE66F,WE67F, WE68F,WE69F,WE70F,WE71F,WE72F,WE73F,WE74F,WE75F,WE76F, WE77F,WE78F,WE79F,WE80F,WE81F,WE82F,WE83F,WE84F,WE85F, WE86F,WE87F
Power Supply Range:	DC 19.5V from battery or DC 19.5V from adapter, AC 120V 60Hz for adapter
Test Power Supply:	DC 19.5V from battery or DC 19.5V from adapter, AC 120V/60Hz for adapter
Power Cord:	1.8 m x 2 wires unscreened DC mains cable

3.2 EUT Test Mode

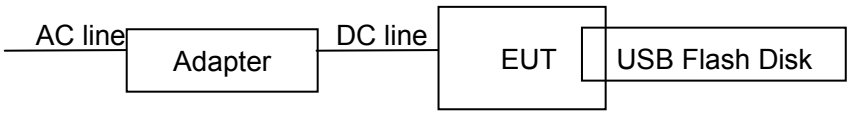
Pre-test the EUT in AC and B/O mode, find worse case in AC mode.			
Number	AV input mode	Audio output mode	Power supply mode
Mode 1	USB 2.0	Built in speaker of EUT	DC 19.5V from adapter, AC 120V/60Hz for adapter
Mode 2	USB 3.0		
Mode 3	HDMI 1		

3.3 Description of Test setup

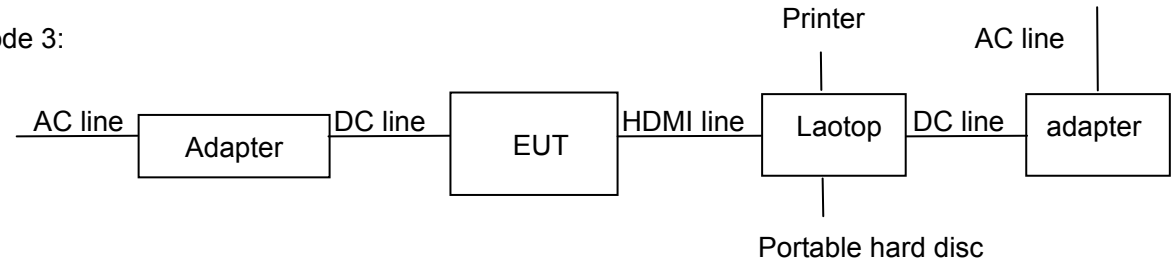
EUT was tested in normal configuration (Please See following Block diagram)

1. Block diagram of EUT configuration

Mode 1 & Mode 2:



Mode 3:



3.4 Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	DVD	G-code	N/A	LVW-1105	N/A	N/A	N/A
2	USB flash disk	Kingston	N/A	DT 101G2	N/A	N/A	N/A
3	HDMI Line	N/A	N/A	N/A	N/A	N/A	1.0m/unshielded /detachable
4	USB extension cable	N/A	N/A	N/A	N/A	0.4m/unshielded /detachable	N/A
5	Printer	EPSON	CE	STYLUS C45	FY9YC48288	1.5m/unshielded /detachable	1.8m/unshielded /detachable
6	Portable Hard Disc	ALUMINUM	CE	3.5 HDD Storage Box	06832c009	1.8m/unshielded /detachable	1.2m/unshielded /detachable

3.5 EUT Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	Adapter	XGIMI	CE, FCC	HKA04519523-XA	N/A	N/A	N/A
2	DC Line(adapter)	N/A	N/A	N/A	N/A	1.8m /unshielded /detachable	N/A
3	remote control	N/A	N/A	N/A	N/A	N/A	N/A

3.6 Test Location

All tests were performed at:
NTEK Testing Technology Co., Ltd
1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street
Bao’an District, Shenzhen P.R. China
The FCC Registration No. of NTEK Testing Technology Co., Ltd is 238937.

4 Equipments List for All Test Items

☒ Radiation Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Spectrum Analyzer	ADVANTEST	R3132	160400005	2015.04.07	2016.04.06
2	EMI Measuring Receiver	R&S	ESCI	1164.6407.03	2015.06.23	2016.06.22
3	Low Noise Pre Amplifier	Tsj	MLA-10K01-B01-27	1205323	2015.03.07	2016.03.06
4	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2015.07.02	2016.07.01
5	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2015.03.07	2016.03.06
6	Spectrum Analyzer	ADVANTEST	R3182	150900201	2015.09.21	2016.09.20
7	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2015.04.07	2016.04.06
8	Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	452	2015.01.09	2016.01.09

☒ Conduction Test equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI Test Receiver	R&S	ESCI	100124	2014.12.29	2015.12.28
2	LISN	Kyoritsu	KNW-242	8-837-4	2015.04.08	2016.04.07
3	LISN	Kyoritsu	KNW-407	8-1789-3	2015.04.08	2016.04.07
4	Pulse limiter	R&S	ESH3-Z2	0357.8810.54	2015.04.08	2016.04.07
5	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2015.04.08	2016.04.07

Note:

1. ☐ is not applicable in this Test Report. ☒ is applicable in this Test Report.

5 Emission Test Results

5.1 Mains Terminals Disturbance Voltage Measurement

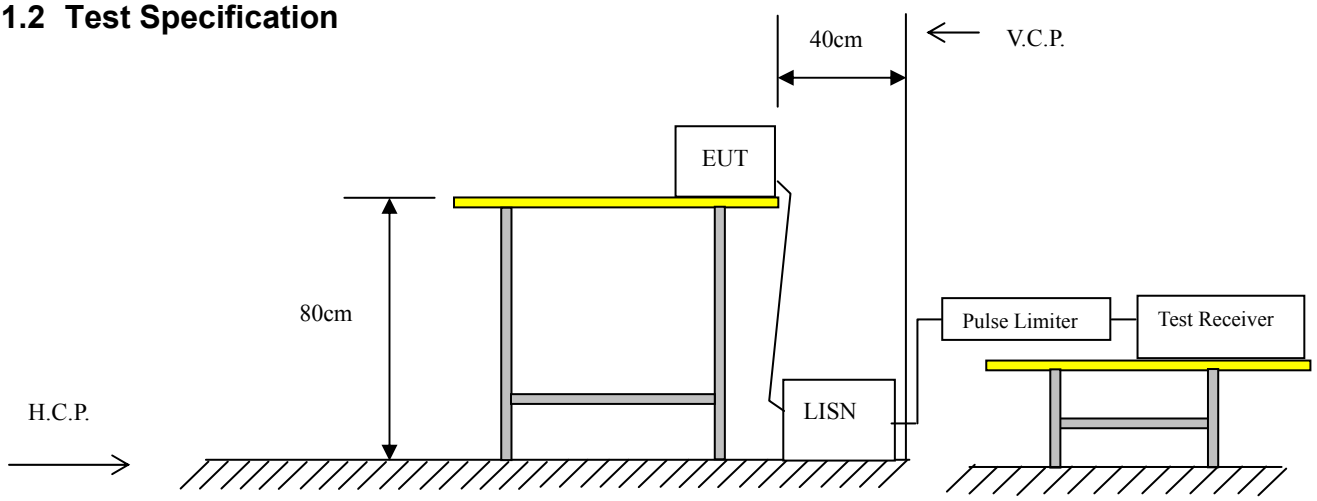
Frequency (MHz)	☐ Class A (dBμV)		☒ Class B (dBμV)	
	Q.P. (Quasi-Peak)	A.V. (Average)	Q.P. (Quasi-Peak)	A.V. (Average)
0.15 ~ 0.50	79	66	66 to 56	56 to 46
0.50 ~ 5.0	73	60	56	46
5.0 ~ 30	73	60	60	50

Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximized peak within 6dB of Average Limit

5.1.1 E.U.T. Operation

Temperature:	25°C	Humidity:	54% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	Mode 1/ Mode 2/ Mode 3			The Worse Mode:	Mode 3	

5.1.2 Test Specification



EUT was placed upon a wooden test table 0.8m above the horizontal metal reference plane and 0.4m from the vertical ground plane, and it was connected to an AMN. The closest distance between the boundary of the EUT and the surface of the AMN is 0.8m. All peripherals were connected to another AMN, and placed at a distance of 10cm from each other. A spectrum and receiver was connected to the RF output port of the AMN. Both average and quasi-peak value were detected.

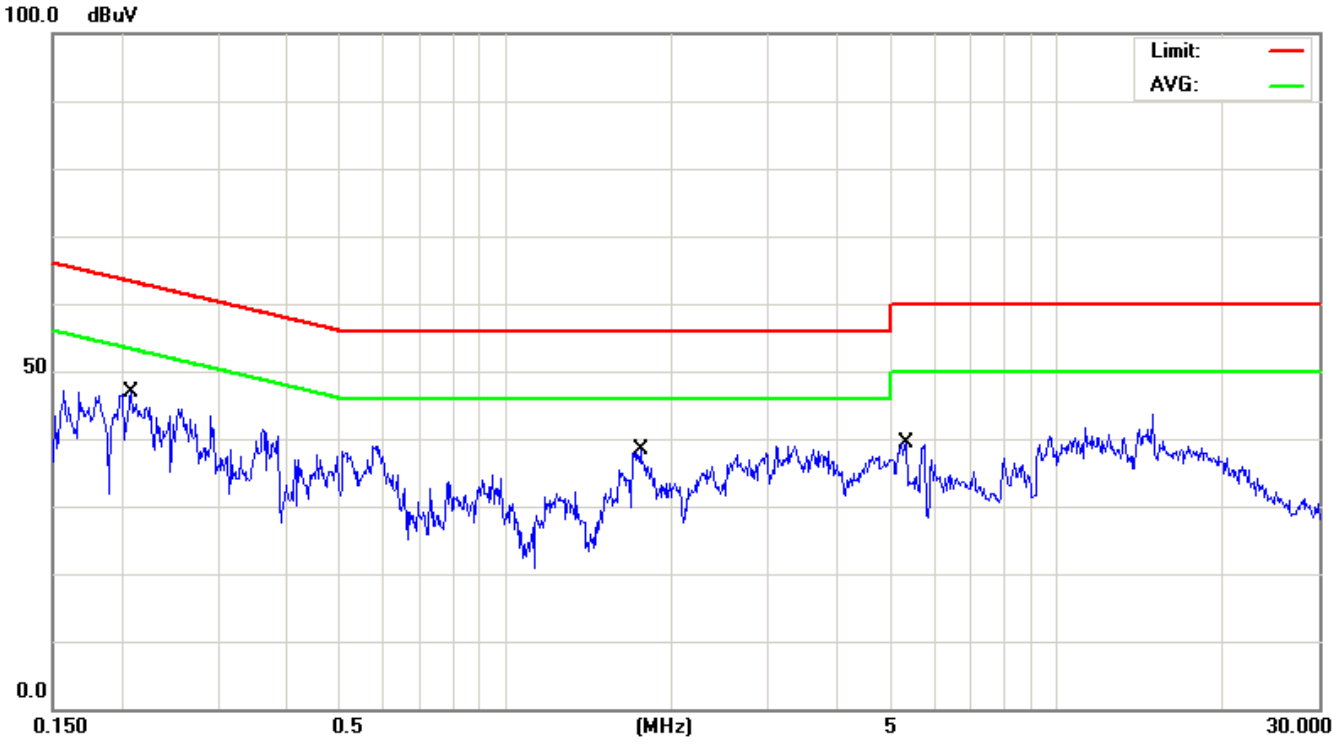
5.1.3 Measurement Data

An initial pre-scan was performed on the live and neutral lines.

Quasi-peak or average measurements were performed at the frequency which maximum peak emissions were detected.

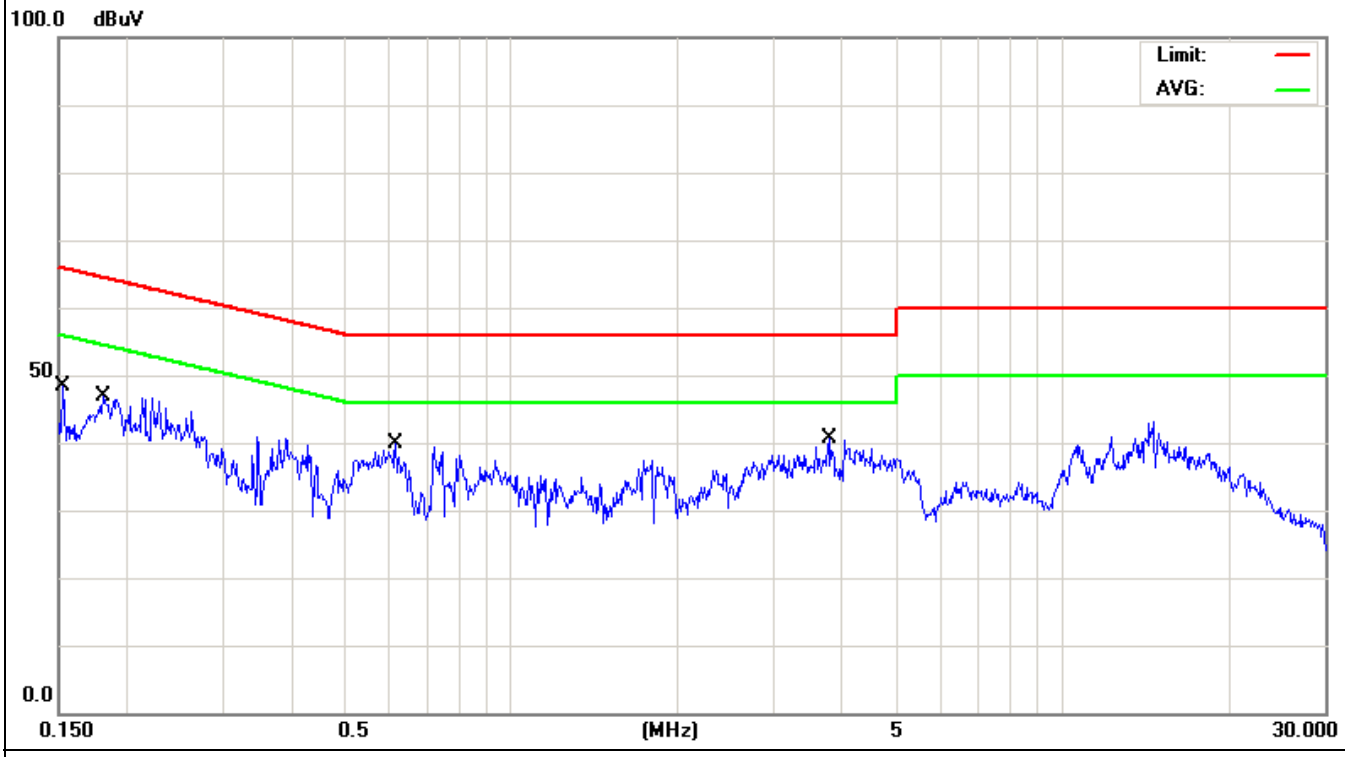
Please refer to the attached quasi-peak & average measurement data for reference.

Model Name ：	XE10F	Phase :	Line
Test Mode ：	Mode 3		



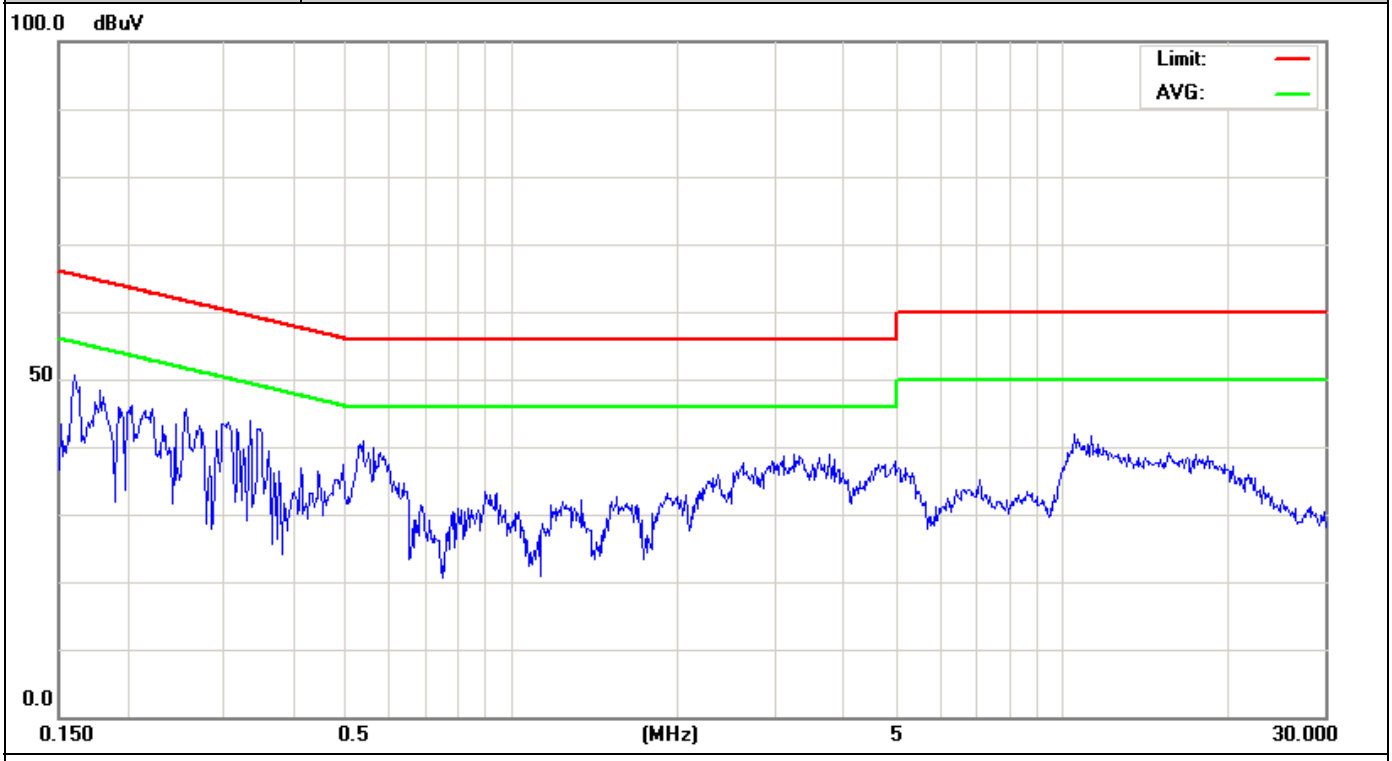
Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
MHz	dBuV	dB	dBuV	dBuV	dB	Detector
0.2083	35.87	11.08	46.95	63.27	-16.32	QP
0.2083	29.87	11.08	40.95	53.27	-12.32	AVG
1.7580	28.42	9.98	38.40	56.00	-17.60	QP
1.7580	21.42	9.98	31.40	46.00	-14.60	AVG
5.3498	29.38	10.12	39.50	60.00	-20.50	QP
5.3498	22.38	10.12	32.50	50.00	-17.50	AVG

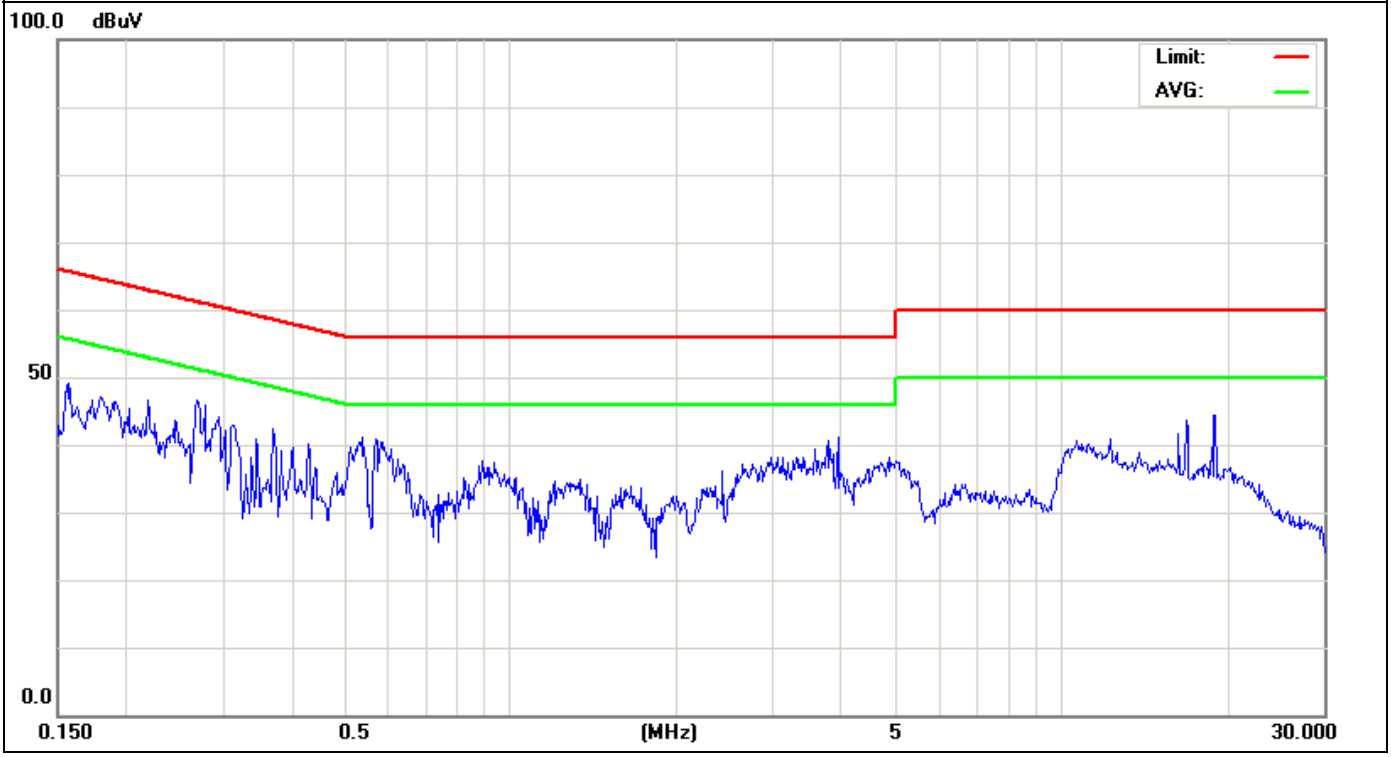
Model Name ：	XE10F	Phase :	Neutral
Test Mode ：	Mode 3		



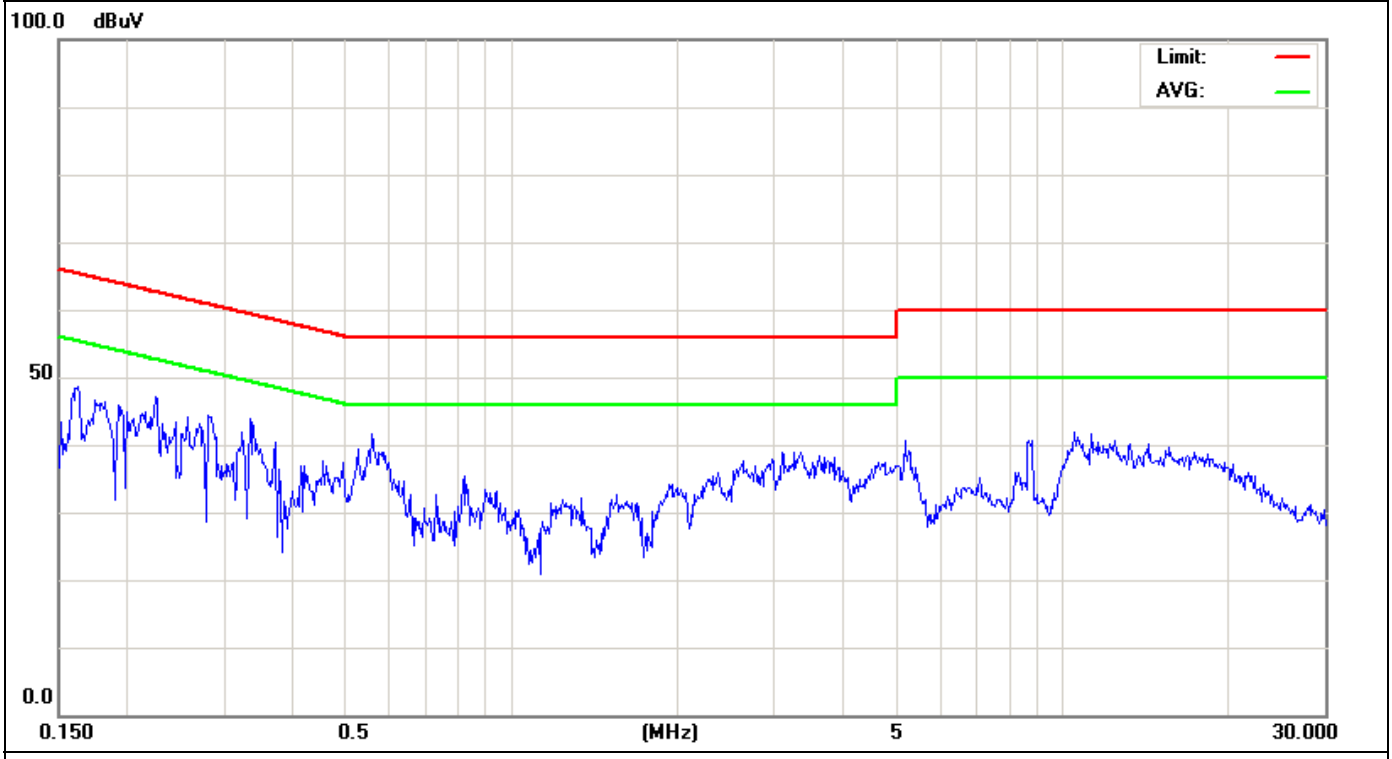
Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
MHz	dBuV	dB	dBuV	dBuV	dB	Detector
0.1524	27.42	11.88	39.30	55.86	-16.56	AVG
0.1804	35.58	11.37	46.95	64.46	-17.51	QP
0.6139	29.86	9.99	39.85	56.00	-16.15	QP
0.6139	21.86	9.99	31.85	46.00	-14.15	AVG
3.7820	30.51	10.05	40.56	56.00	-15.44	QP
3.7820	22.51	10.05	32.56	46.00	-13.44	AVG

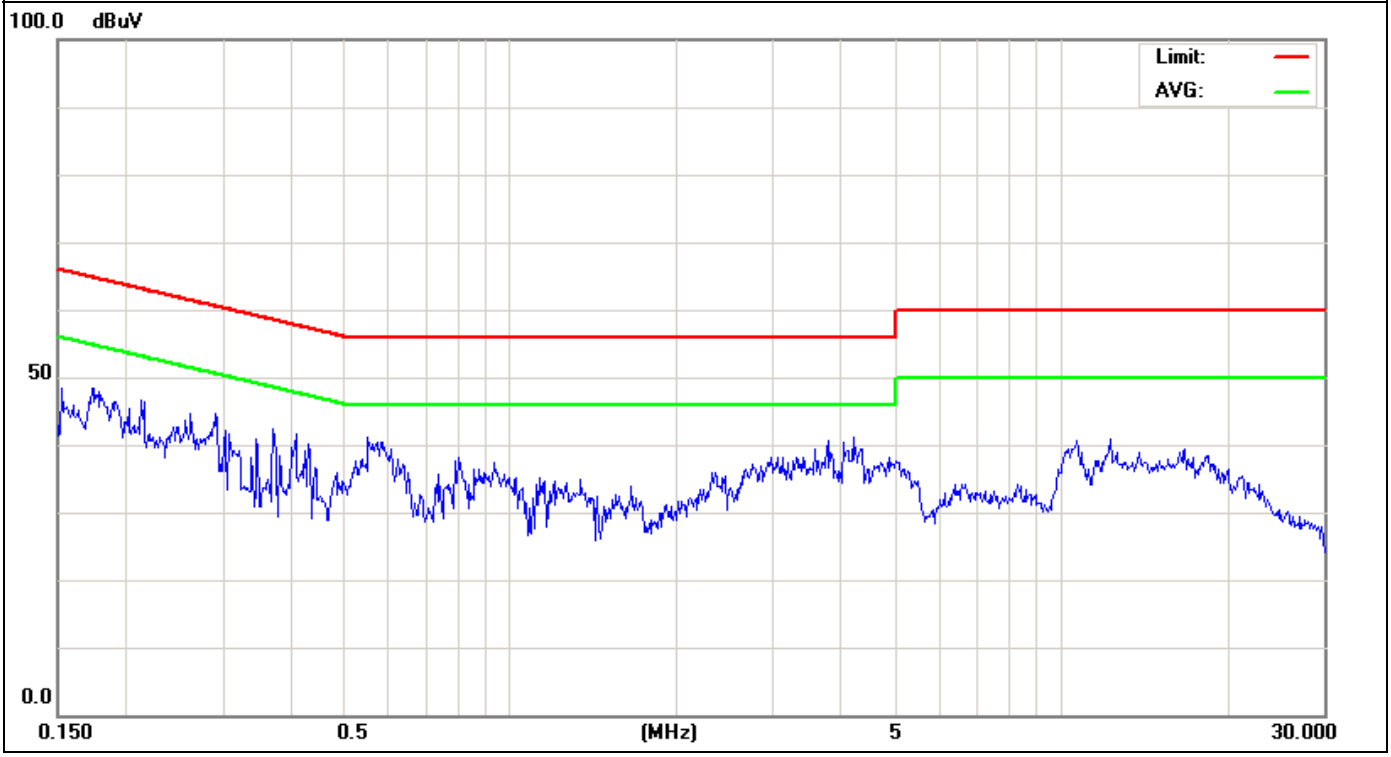
Model Name ：	XE10F	Phase :	Line / Neutral
Test Mode ：	Mode 1		





Model Name ：	XE10F	Phase :	Line / Neutral
Test Mode ：	Mode 2		





5.2 Radiated Emission Measurement

Limits of Radiated Emission Measurement

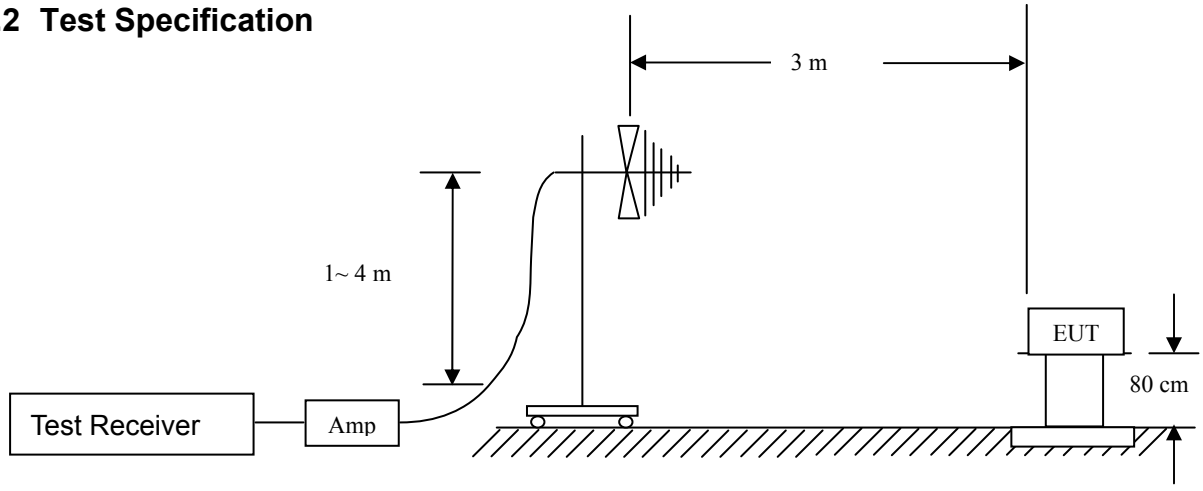
Frequency (MHz)	☐ Class A (10m)	☒ Class B (3m)
	Quasi-Peak dB(μV/m)	Quasi-Peak dB(μV/m)
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximum peak within 6dB of limit

5.2.1 E.U.T. Operation

Temperature:	26°C	Humidity:	55% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	Mode 1/ Mode 2/ Mode 3			The Worst Mode:	Mode 3	

5.2.2 Test Specification



EUT was placed upon a wooden test table which was placed on the turn table 0.8m above the horizontal metal ground plane, and operating in the mode as mentioned above. A receiving antenna was placed 3m away from the EUT. During testing, turn around the turn table and move the antenna from 1m to 4m to find the maximum field-strength reading. All peripherals were placed at a distance of 10cm between each other. Both horizontal and vertical antenna polarities were tested.

5.2.3 Measurement Data

An initial pre-scan was performed in the 3m chamber using the spectrum analyzers in peak detection mode. The EUT was measured by Biology antenna with 2 orthogonal polarities and peak emissions from the EUT were detected within 6dB of the class B limit line.

The following quasi-peak measurements were performed on the EUT.

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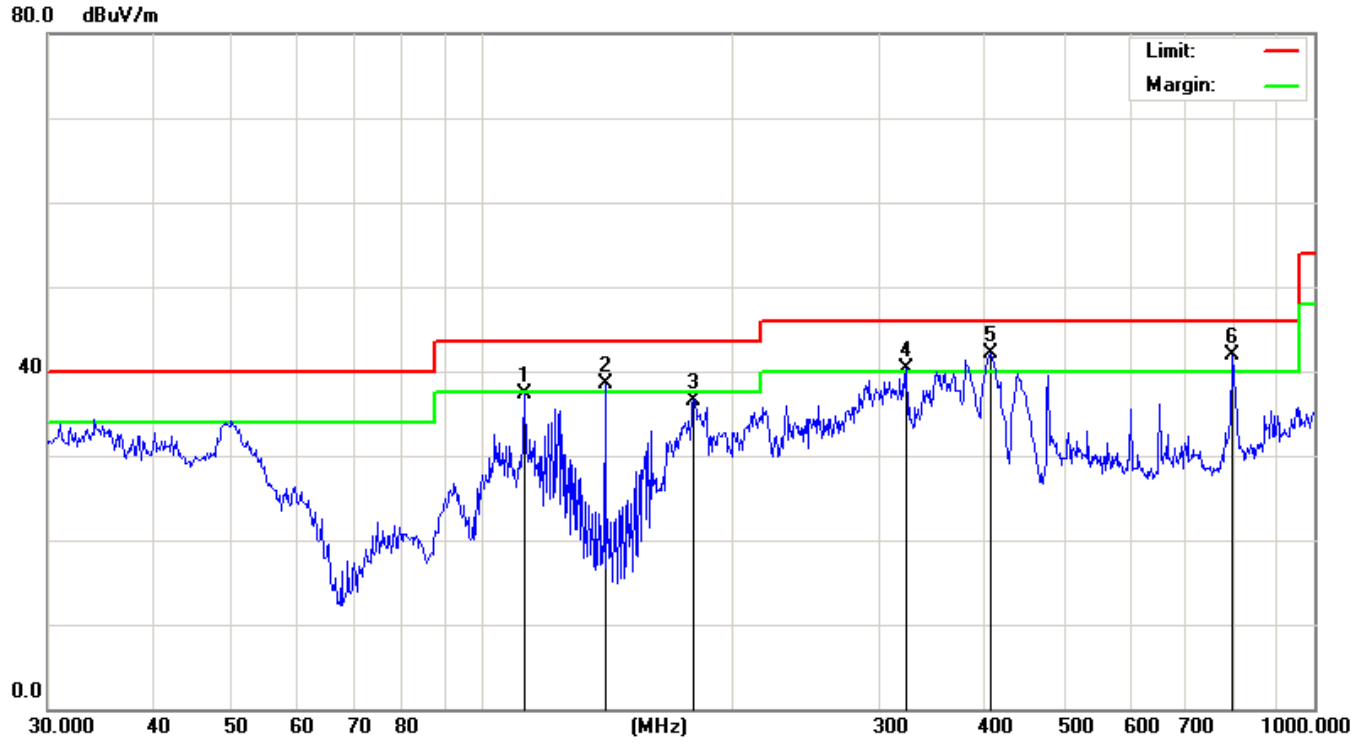
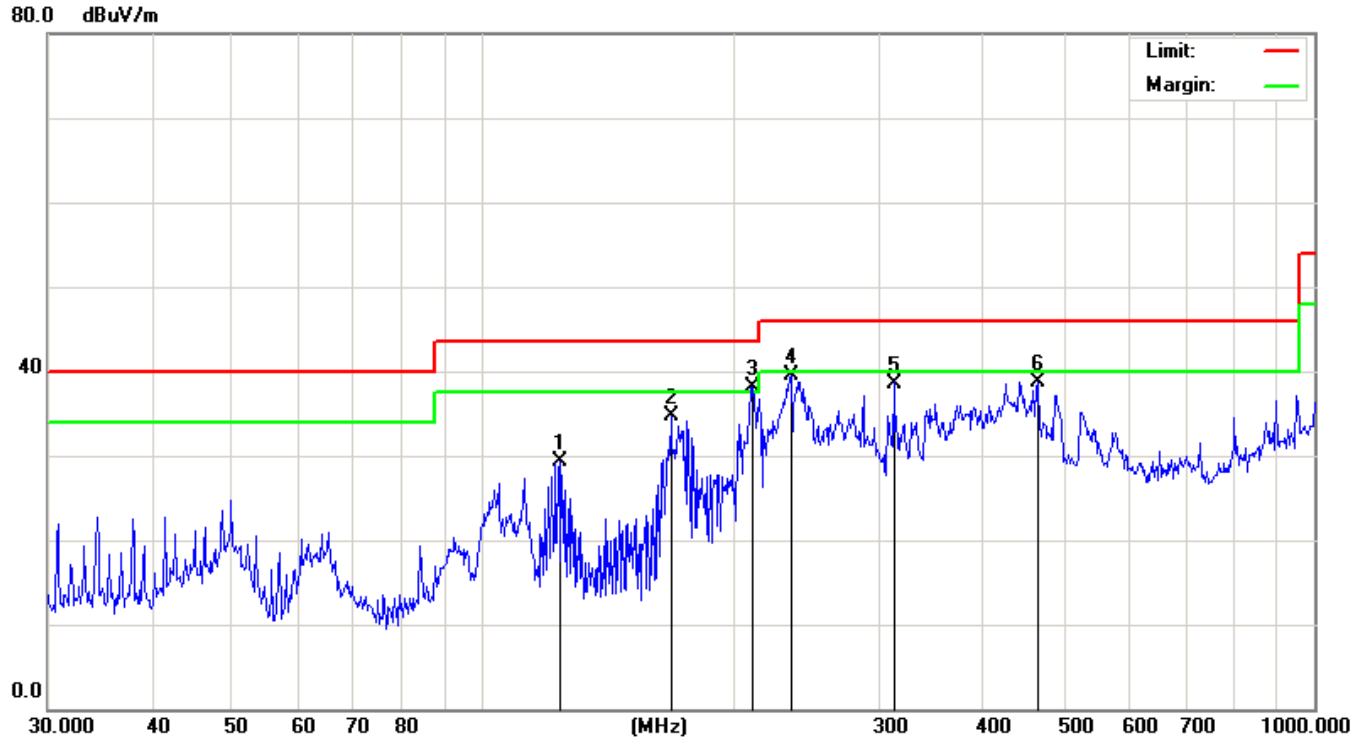
Model Name ：	XE10F	Phase :	Vertical
Test Mode ：	Mode 3		



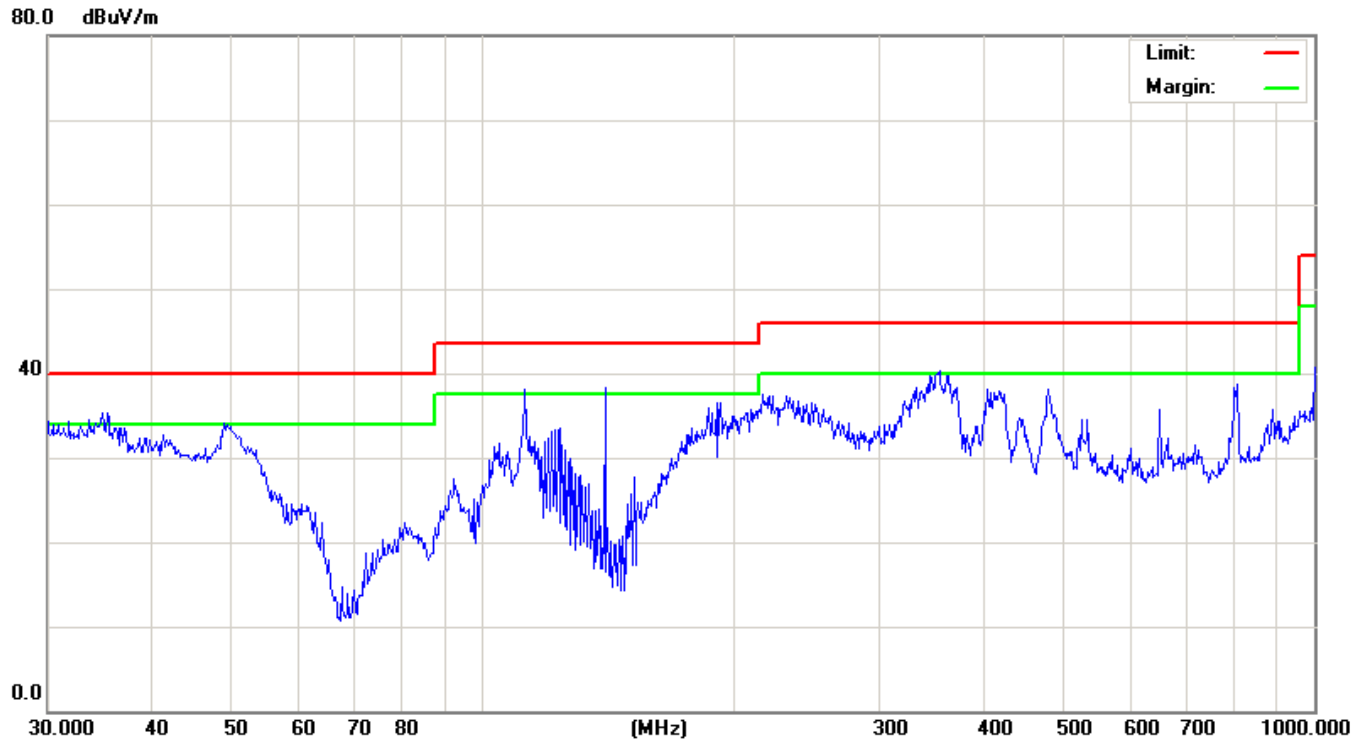
Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
112.1304	51.12	-13.72	37.40	43.50	-6.10	QP
140.3420	53.48	-14.98	38.50	43.50	-5.00	QP
179.3863	51.24	-14.64	36.60	43.50	-6.90	QP
323.3204	49.06	-8.76	40.30	46.00	-5.70	QP
408.9460	48.71	-6.55	42.16	46.00	-3.84	QP
796.1829	38.99	3.01	42.00	46.00	-4.00	QP

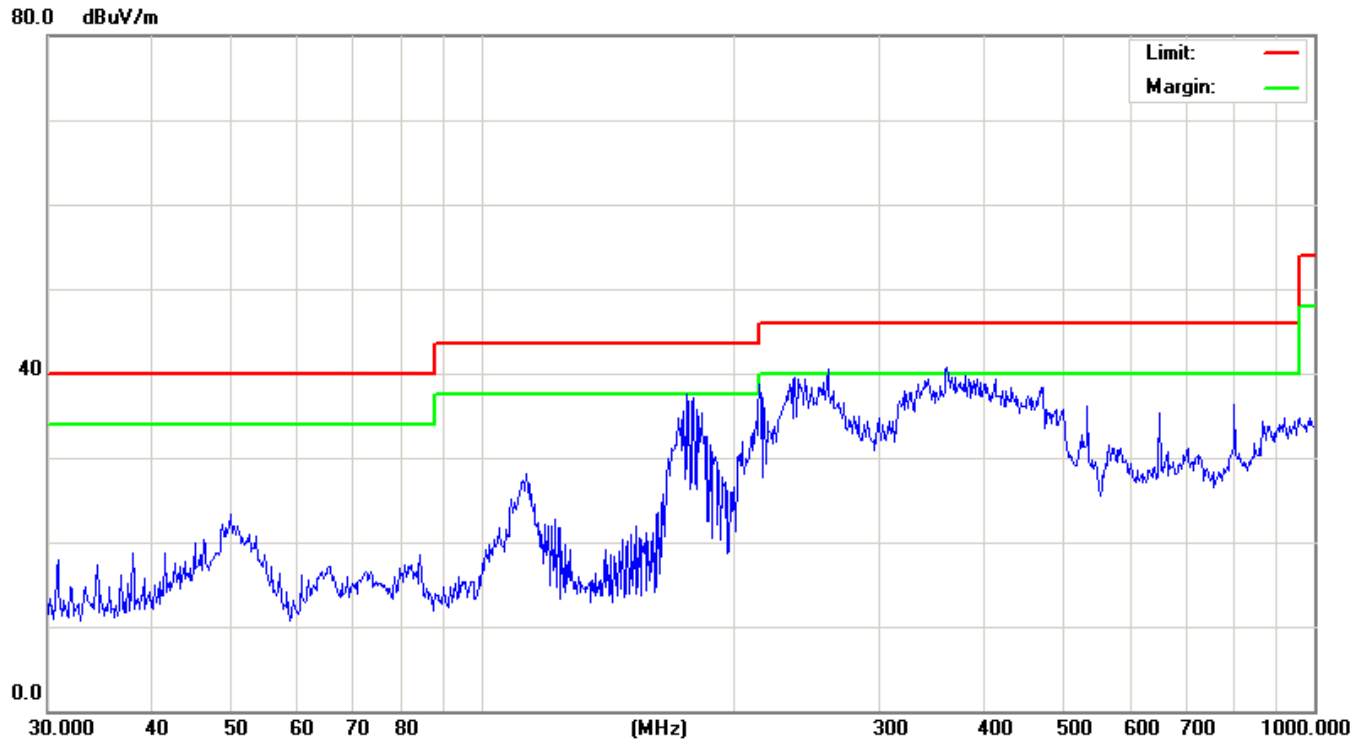
Model Name ：	XE10F	Phase :	Horizontal
Test Mode ：	Mode 3		



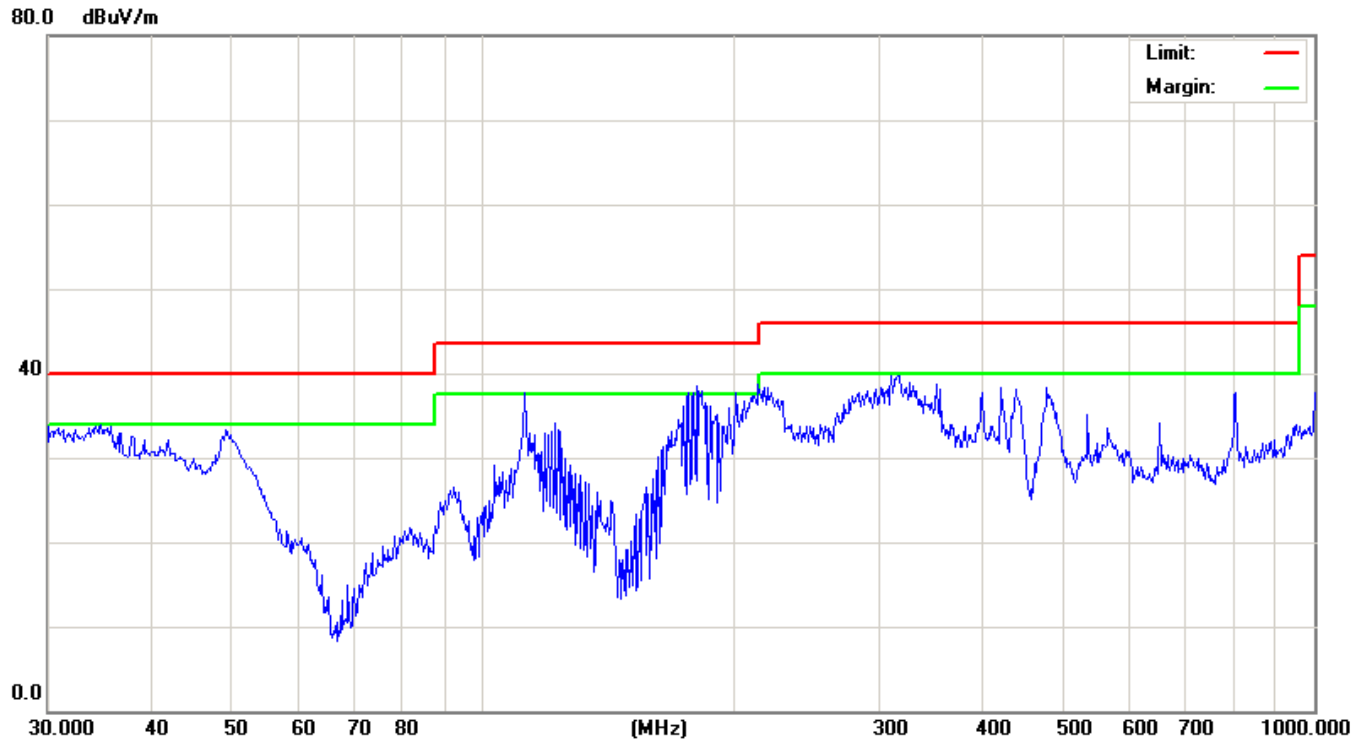
Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
123.6984	44.42	-15.09	29.33	43.50	-14.17	QP
168.4138	48.17	-13.49	34.68	43.50	-8.82	QP
210.7860	52.62	-14.42	38.20	43.50	-5.30	QP
234.9909	51.67	-12.16	39.51	46.00	-6.49	QP
312.1792	47.71	-9.11	38.60	46.00	-7.40	QP
465.5994	45.26	-6.46	38.80	46.00	-7.20	QP

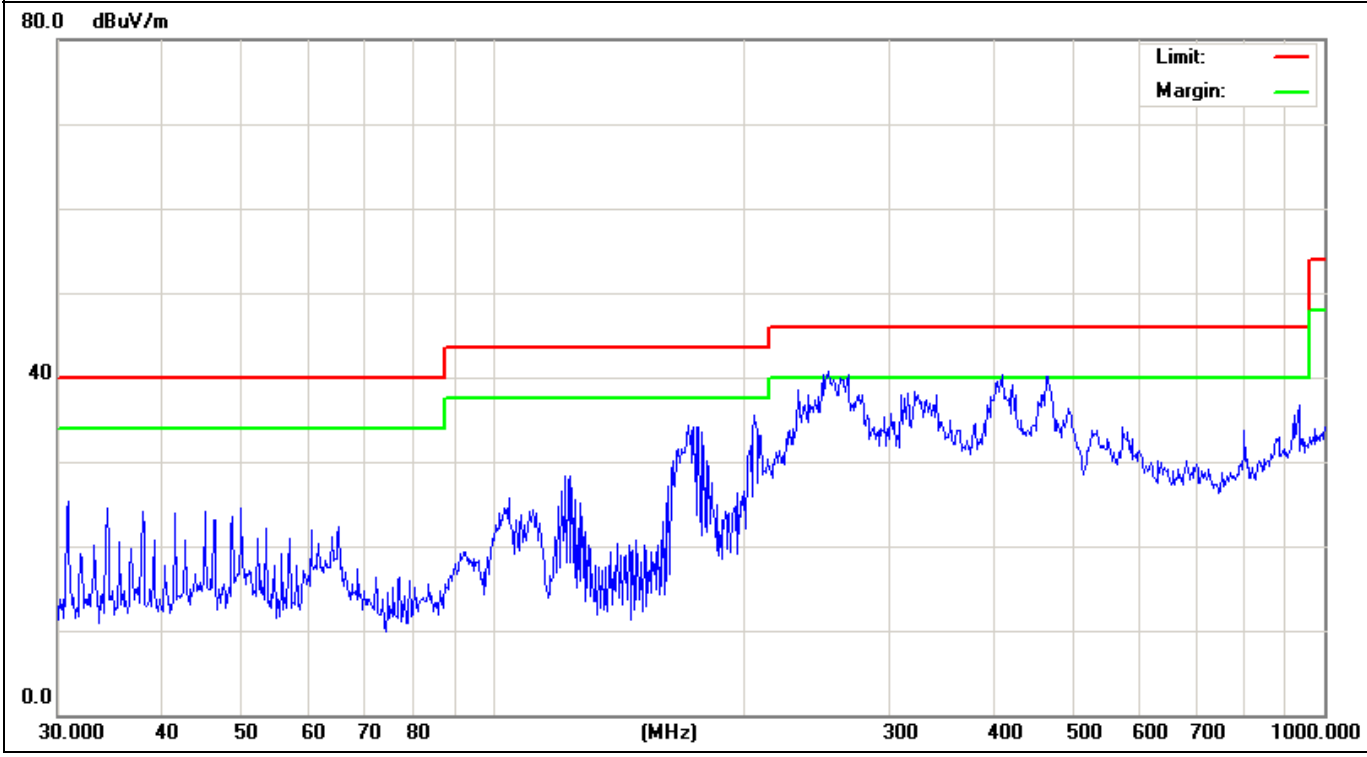
Model Name ：	XE10F	Phase :	Vertical / Horizontal
Test Mode ：	Mode 1		





Model Name ：	XE10F	Phase :	Vertical / Horizontal
Test Mode ：	Mode 2		





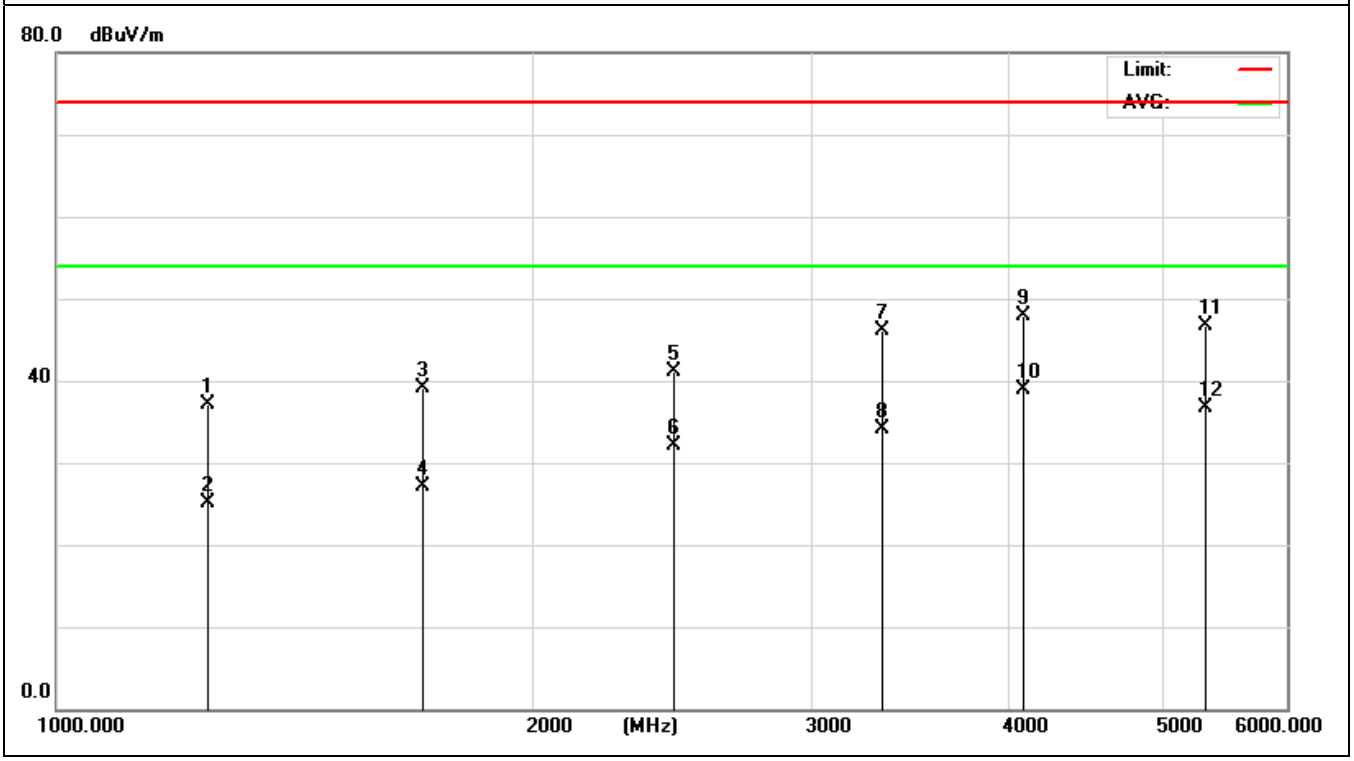
Between 1000-6000MHz

EUT：	LED Projector	Model Name ：	XE10F
Temperature：	23 ℃	Relative Humidity：	56%
Pressure：	1010hPa	Test Date :	2015-09-30
Test Mode：	Mode 3 (the worst case)	Phase :	Vertical
Test Voltage ：	DC 19.5V from adapter, AC 120V/60Hz for adapter		

Frequency	Meter Reading (dBμV)		Factor	Emission Level (dBμV)		Limits (dBμV)		Margin (dBμV)	
(MHz)	Peak	Average	(dB)	Peak	Average	Peak	Average	Peak	Average
1245.327	47.52	35.49	-10.48	37.04	25.01	74.00	54.00	-36.96	-28.99
1702.914	48.63	36.65	-9.62	39.01	27.03	74.00	54.00	-34.99	-26.97
2458.283	46.38	37.21	-5.20	41.18	32.01	74.00	54.00	-32.82	-21.99
3327.664	47.05	35.11	-1.02	46.03	34.09	74.00	54.00	-27.97	-19.91
*4089.092	43.97	34.97	3.97	47.94	38.94	74.00	54.00	-26.06	-15.06
5321.268	42.36	32.36	4.36	46.72	36.72	74.00	54.00	-27.28	-17.28

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. '*' means the worst case



EUT：	LED Projector	Model Name ：	XE10F
Temperature：	23 ℃	Relative Humidity：	56%
Pressure：	1010hPa	Test Date :	2015-09-30
Test Mode：	Mode 3 (the worst case)	Phase :	Horizontal
Test Voltage ：	DC 19.5V from adapter, AC 120V/60Hz for adapter		

Frequency	Meter Reading (dBμV)		Factor	Emission Level (dBμV)		Limits (dBμV)		Margin (dBμV)	
(MHz)	Peak	Average	(dB)	Peak	Average	Peak	Average	Peak	Average
1052.364	46.55	34.98	-10.83	35.72	24.15	74.00	54.00	-38.28	-29.85
1588.851	49.22	35.87	-9.89	39.33	25.98	74.00	54.00	-34.67	-28.02
2236.966	49.50	38.21	-7.08	42.42	31.13	74.00	54.00	-31.58	-22.87
3218.042	48.15	34.89	-1.17	46.98	33.72	74.00	54.00	-27.02	-20.28
*4152.354	44.11	33.86	4.07	48.18	37.93	74.00	54.00	-25.82	-16.07
5478.269	43.57	31.82	3.94	47.51	35.76	74.00	54.00	-26.49	-18.24

Remark:

3. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
4. '*' means the worst case