EMC TEST REPORT

Report No.:	SET2016-01612
Product:	AC Adaptor
Model No. :	KPL-xy (x = 048, 066; y = F), KPL-xy-VI (x = 040, 048, 050, 060, 065, 066; y = F, G, V, H, I, W, J, K, L, N, Q, R, M, S)
Brand name :	CWT
Applicant:	CHANNEL WELL TECHNOLOGY CO., LTD.
Issued by:	CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd.
Lab Location:	Electronic Testing Building, No. 43 Shahe Road, Xili Jiedao, Nan shan District, 518055 Shenzhen, Guangdong, China
	Tel: 86 755 26627338 **Fax:** 86 755 26627238

This test report consists of **21** pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CCIC-SET. The test results in the report only apply to the tested sample. The test report shall be invalid without all the signatures of testing engineers, reviewer and approver. Any objections must be raised to CCIC-SET within 15 days since the date when the report is received. It will not be taken into consideration beyond this limit.

Query No. :1ADK5JcK

Test Report

Product	AC Adaptor
Model No.	KPL-xy (x = 048, 066; y = F), KPL-xy-VI (x = 040, 048, 050, 060, 065, 066; y = F, G, V, H, I, W, J, K, L, N, Q, R, M, S)
Brand name	CWT
Applicant	CHANNEL WELL TECHNOLOGY CO., LTD.
Applicant Address	No.222, Sec. 2, Nankan Rd., Lujhu Township, Taoyuan Hsien,
Manufacturer	CHANNEL WELL TECHNOLOGY CO., LTD.
Manufacturer Address	No.222, Sec. 2, Nankan Rd., Lujhu Township, Taoyuan Hsien,
Test Standards	ICES-003 issue 5(2012), Class A
Test Result	PASS
Tested by	Xu Wei wei
	Signature, Date
Reviewed by	Zhu Qi
	Signature, Date
Approved by	Wu Lian
	Signature, Date

Table of Contents

1 General Information

1.1 Description of EUT

Product: AC Adaptor

Model No.: KPL-xy(x=040, 050, 060, 065, denotes for output power; y=F, G, V, H, I, W, J, K, L, N, Q, R, or M, denotes for output voltage)

Rating: AC input: 100-240VAC 50/60Hz 1.7A

DC output: please refer to model list table for details

Accessories: /

NOTE:

1. The product being tested in this report is a AC Adaptor. The power supply unit is fully enclosed with a standard off the shelf designing. The power supply is for building-in application for ITE equipment. For a more detailed description of the EUT, please refer to the user manual.

2.KPL-xy:

x represents the output wattage; x = 048, 066

y represents the output voltage; y = F

KPL-xy-VI:

x represents the output wattage; x = 040, 048, 050, 060, 065, 066

y represents the output voltage; y = F, G, V, H, I, W, J, K, L, N, Q, R, M, S

x= O/P Wattage (W)	y= O/P Wattage	DC Output Voltage (V)	AC Input Voltage (VAC)	AC Input Current (A)	AC Input Frequency (Hz)
40, 48, 50, 60, 65, 66	F	12	100-240	1.7	50/60
40, 50, 60	G	13	100-240	1.7	50/60
40, 50, 60	V	14	100-240	1.7	50/60
40, 50, 60	H	15	100-240	1.7	50/60
40, 50, 60	I	16	100-240	1.7	50/60
40, 50, 60	W	17	100-240	1.7	50/60
40, 50, 65	J	18	100-240	1.7	50/60

40, 50, 60, 65	K	19	100-240	1.7	50/60
40, 50, 65	L	20	100-240	1.7	50/60
40, 50, 65	N	21	100-240	1.7	50/60
40, 50, 65	Q	22	100-240	1.7	50/60
40, 50, 65	R	23	100-240	1.7	50/60
40, 50, 60, 65	M	24	100-240	1.7	50/60
50, 60, 65	S	48	100-240	1.7	50/60

O/P Voltage (y=)	O/P Voltage (V)	DC Output Voltage @ O/P Wattage 40W	DC Output Voltage @ O/P Wattage 48W	DC Output Voltage @ O/P Wattage 50W	DC Output Voltage @ O/P Wattage 60W	DC Output Voltage @ O/P Wattage 65W	DC Output Voltage @ O/P Wattage 66W
F	12	3.33	4.00	4.17	5.00	5.42	5.50
G	13	3.08	---	3.85	4.62	---	---
V	14	2.86	---	3.57	4.29	---	---
H	15	2.67	---	3.33	4.00	---	---
I	16	2.50	---	3.13	3.75	---	---
W	17	2.35	---	2.94	3.53	---	---
J	18	2.22	---	2.78	---	3.61	---
K	19	2.11	---	2.63	3.16	3.42	---
L	20	2.00	---	2.50	---	3.25	---
N	21	1.90	---	2.38	---	3.10	---
Q	22	1.82	---	2.27	---	2.95	---
R	23	1.74	---	2.17	---	2.83	---
M	24	1.67	---	2.08	2.50	2.71	---
S	48	---	---	1.04	1.25	1.35	---

3. According to the rating table above, all the applied EMC tests were performed on the model KPL-066F-VI (1#, Max. current and Max. power) and KPL-065S-VI (2#, Max. voltage). The test results represented other models..

2 Test Facilities and Configuration

2.1 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

3 Summary of Test Results

The EUT has been tested according to the following specifications:

EMISSION		
Standard	**Test Type**	**Result**
ICES-003 issue 5(2012)，Class B	Radiated disturbance	PASS
	Conducted Emission	PASS

4 Emission Test

4.1 EUT Setup and Operation

The EUT was powered by 120VAC Mains.
The EUT was connected to resistance loads and operating at rated output.

4.2 Mains Terminal Disturbance Voltage Measurement

4.2.1 Limits of Mains Terminal Disturbance Voltage

Frequency range (MHz)	Limits (dBμV), Class B ITE	
	Quasi-peak	Average
0.15 - 0.50	66～56	56～46
0.50 – 5	56	46
5-30	60	50

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

4.2.2 Test Procedure

a. The EUT was placed 0.4 meters from the conducting wall of shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50Ω/50μH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

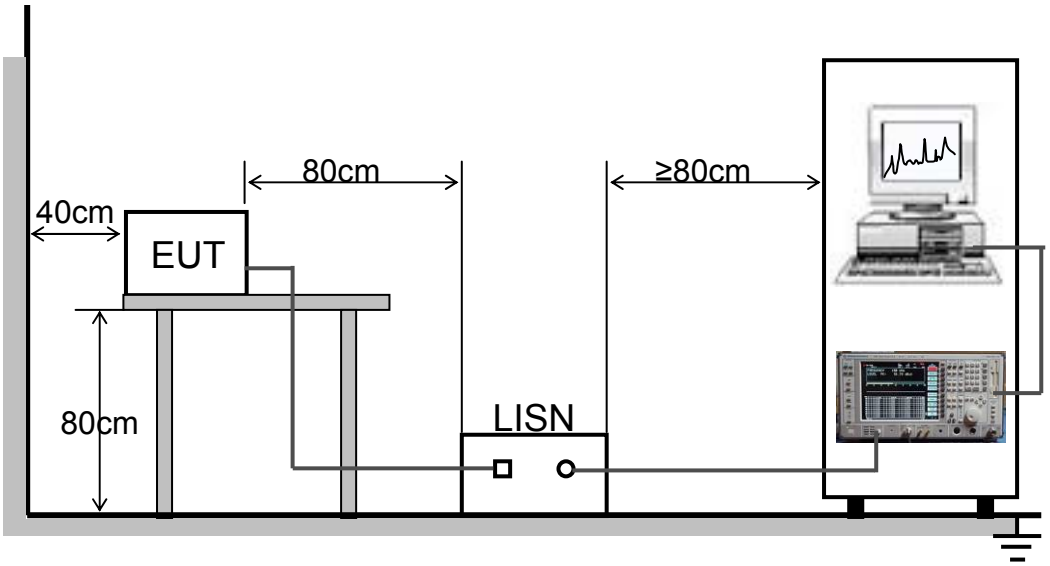
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits are not reported.

4.2.3 Measurement Equipments Used

Description	Manufacturer	Model No.	Calibration Date	Serial No.
Test Receiver	ROHDE&SCHWARZ	ESIB7	Jun.10, 2016	A0501375
Broadband Ant.	CHASE	CBL6111A	Jun.10, 2016	A9704202
Shield Room	Nanbo Tech	RF-2 10.5×5×3.2 (m)	Nov. 14, 2016	A0301188

NOTE: Equipments above have been calibrated and are in the period of validation.

4.2.4 Test Setup



For the actual test configuration, please refer to the related item - Photographs of the Test Configuration.

4.2.5 Test Result

1#

NO.	Freq. (MHz)	Limit Value (dBμV)		Emission Level (dBμV)	
		QP	AV	QP	AV
1	0.1995	63.6	53.6	48.93	Note (2)
2	3.1380	56	46	40.17	Note (2)
3	15.0585	60	50	41.87	Note (2)
4	0.2040	63.4	53.4	51.76	Note (2)
5	0.4020	57.8	47.8	42.76	Note (2)
6	16.1205	60	50	44.08	Note (2)

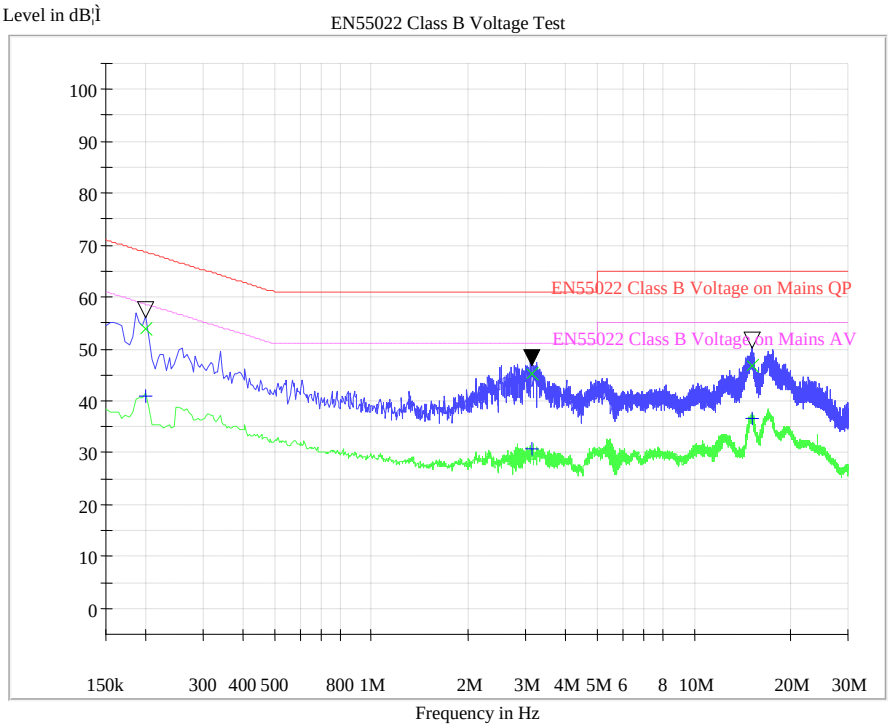
2#

NO.	Freq. (MHz)	Limit Value (dBμV)		Emission Level (dBμV)	
		QP	AV	QP	AV
1	0.5505	56	46	53.24	38.80
2	0.7575	56	46	53.40	38.22
3	0.9465	56	46	53.11	40.45
4	0.5505	56	46	53.86	39.09
5	0.7440	56	46	53.89	40.17
6	0.9510	56	46	54.35	41.09

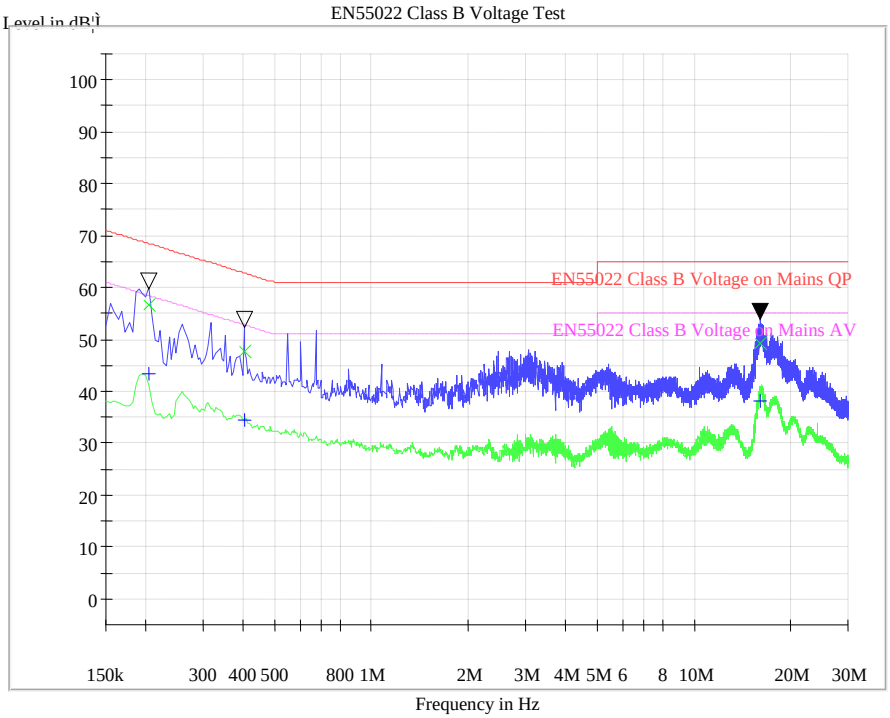
NOTE:

1. QP and AV are abbreviations of the quasi-peak and average individually.
2. If the emission levels measured with QP detector are lower than AV limits, there is unnecessary to measure with AV detector.
3. The emission levels recorded above are the larger ones of both L phase and N phase.

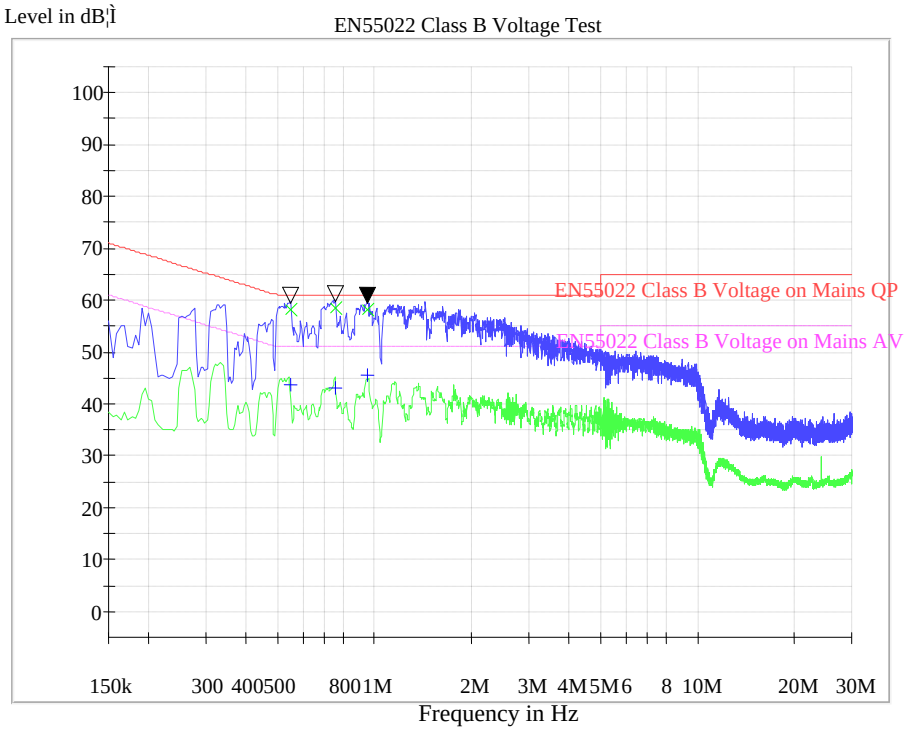
1. Mains terminal disturbance voltage, L phase 1#



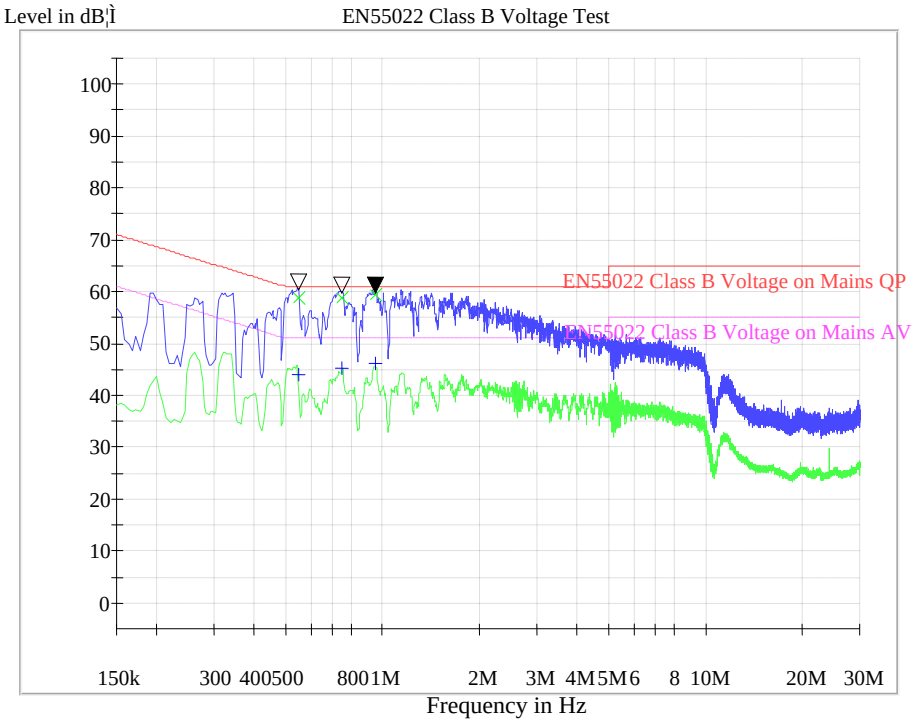
2. Mains terminal disturbance voltage, N phase 1#



3. Mains terminal disturbance voltage, L phase 2#



4. Mains terminal disturbance voltage, N phase 2#



4.3 Radiated Emission Test

4.3.1 Limits of Radiated Emission

The field strength of radiated emissions from unintentional radiators at a distance of 10 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)
30 - 88	100	40
88 -216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE:

1. Field Strength (dBμV/m)=20log Field Strength (μV/m).
2. In the emission tables above, the tighter limit applies at the band edges.

4.3.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Test Instruments for 30-1GHz					
Broadband Ant.	CHASE	CBL6111A	A9704202	Jun.10, 2015	Jun.10, 2016
Test Receiver	ROHDE&SCHWARZ	ESIB7	A0501375	Jun.10, 2015	Jun.10, 2016
Anechoic Chamber	Albatross	B83117-B1482-T161	A0412372	Jun.10, 2015	Jun.10, 2016
Test Instruments for above 1GHz					
Test Receiver	ROHDE&SCHWARZ	ESIB26	A0304218	Jun.10, 2015	Jun.10, 2016
Horn Ant.	ROHDE&SCHWARZ	HF906	A0304225	Jun.10, 2015	Jun.10, 2016
Anechoic Chamber	Albatross	SAC-5MAC	P21505	Feb.23, 2015	Feb.23, 2016

Horn Ant.	ROHDE&SCHWARZ	UG-596A/U	A090260 7	Jun.10, 2015	Jun.10, 2016
Horn Ant.	ROHDE&SCHWARZ	UG-600A/U	A090260 6	Jun.10, 2015	Jun.10, 2016

4.3.3 Test Procedure

a. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

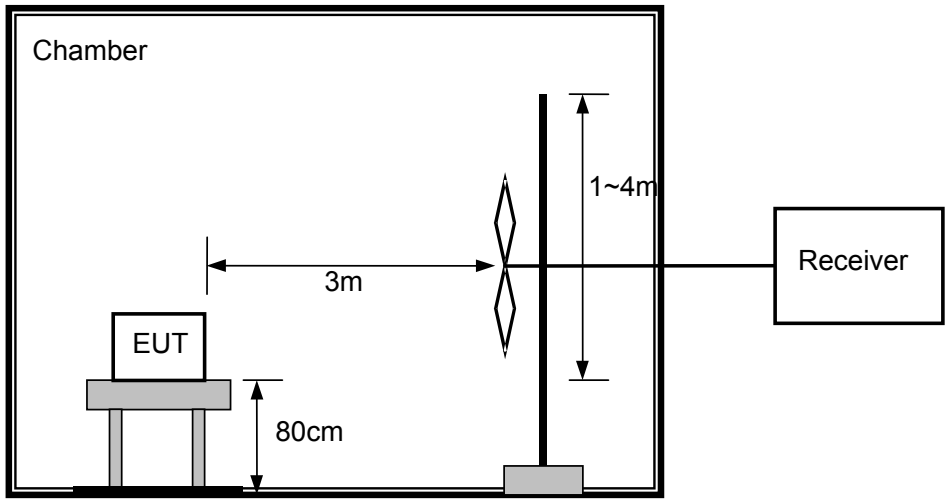
b. The antenna is a broadband antenna, and its height is varied from one meter to four meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

c. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the heights from 1 to 4 meters and the ratable table was turned from 0 degrees to 360 degrees to find the maximum reading.

d. The test-receiver system was set to Peak Detector Function and Specified Bandwidth with Maximum Hold Mode.

e. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emission that did not have 10 dB margins would be retested one by one using the quasi-peak method.

4.3.4 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

4.3.5 EUT Operating Conditions

The EUT was powered by 120V AC Mains. The EUT was connected to resistance loads and operating at rated output.

4.3.6 Test Results

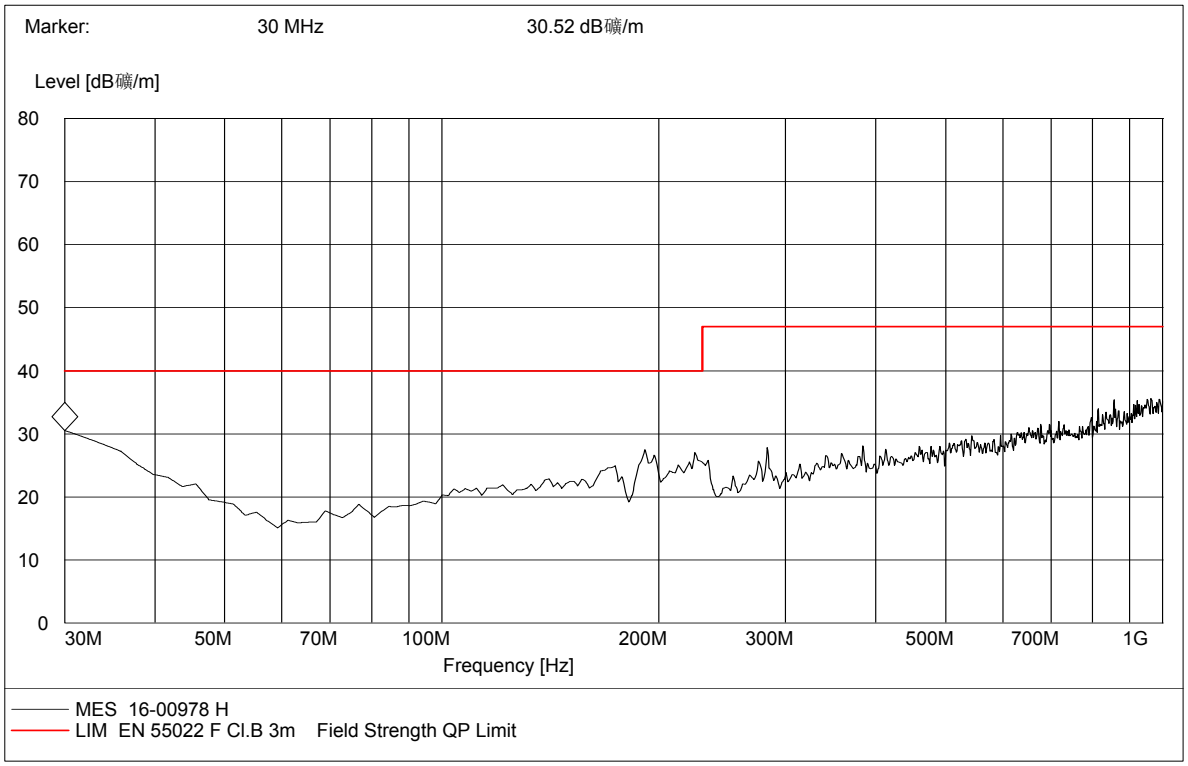
1#

No.	Frequency (MHz)	Polarity	Antenna Height (cm)	Table Angle (Degree)	QP Limits (dBμV)	Emission Level (dBμV)
1	30 - 88	H	100-400	0-360	40	<40
2	88 -216	H/V	100-400	0-360	43.5	<40
3	216 - 960	H/V	100-400	0-360	46	<50
4	960-1000	H/V	100-400	0-360	54	<50
5	32.54	V	140	270	40	32.68

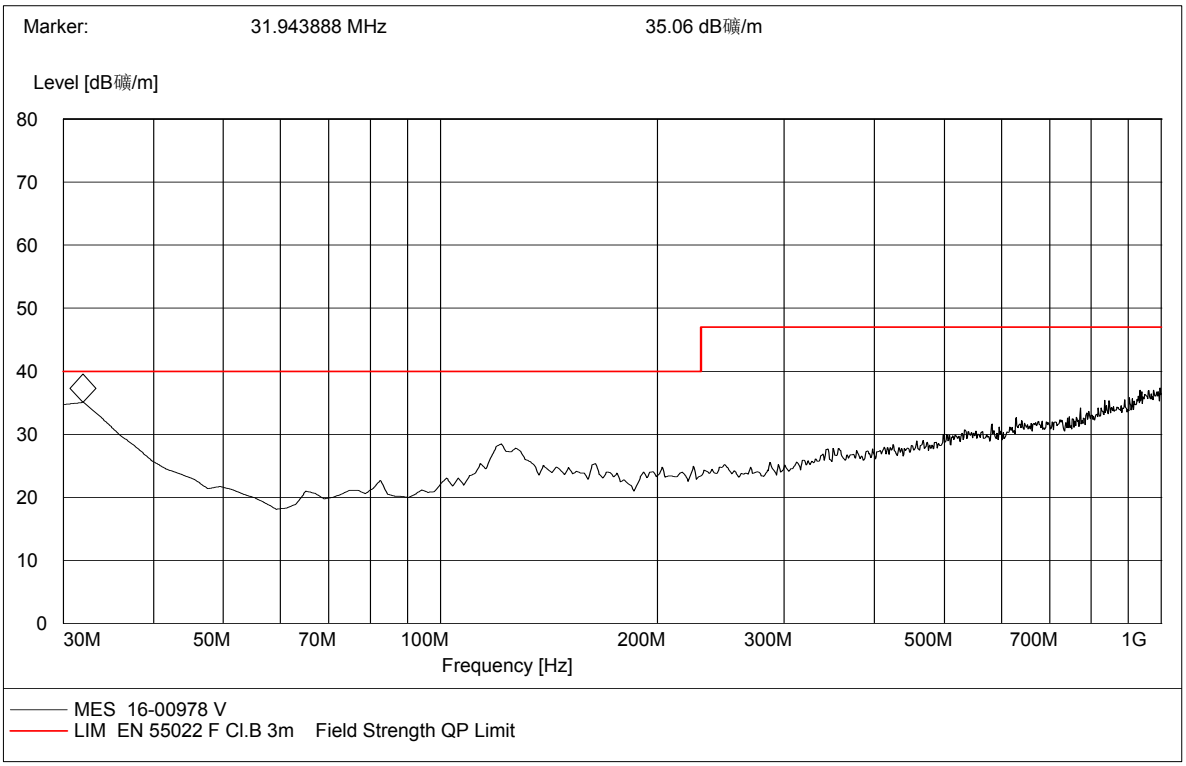
2#

No.	Frequency (MHz)	Polarity	Antenna Height (cm)	Table Angle (Degree)	QP Limits (dBμV)	Emission Level (dBμV)
1	30 - 88	H/V	100-400	0-360	40	<40
2	88 -216	H/V	100-400	0-360	43.5	<40
3	216 - 960	H/V	100-400	0-360	46	<50
4	960-1000	H/V	100-400	0-360	54	<50
5	30.52	H	140	270	40	30.21

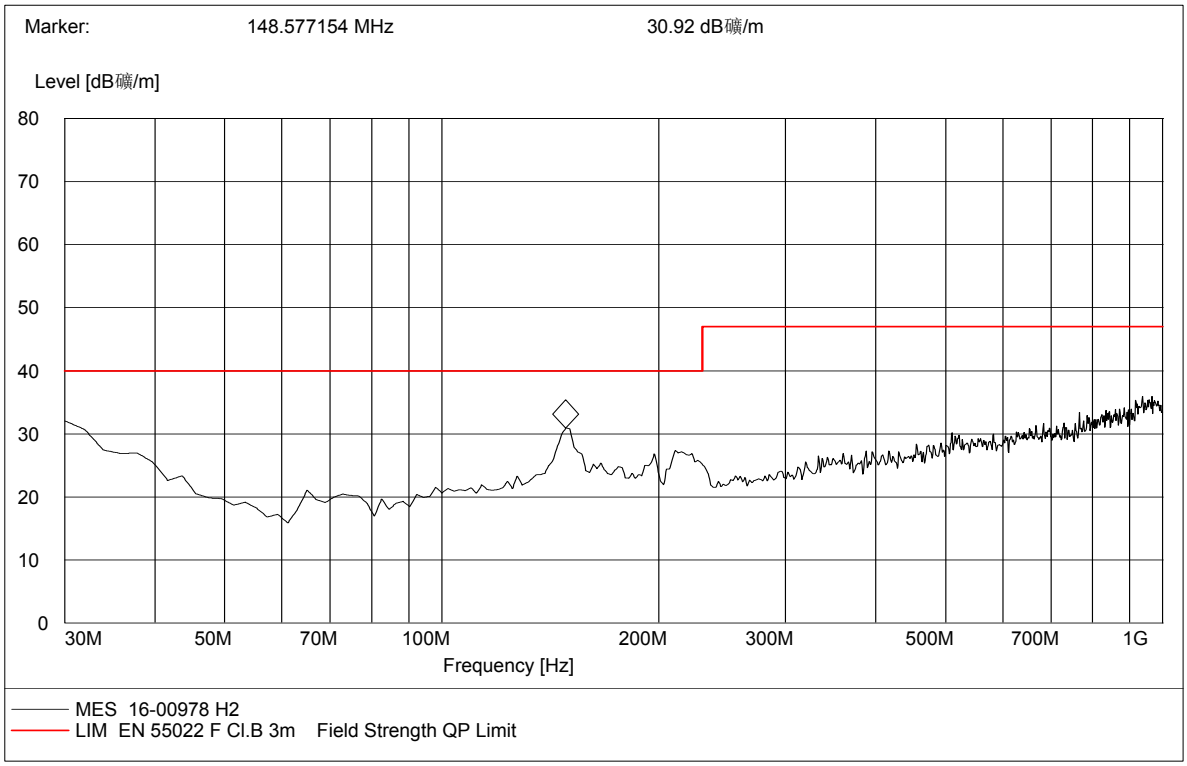
Electromagnetic radiation disturbances, Horizontal 1#



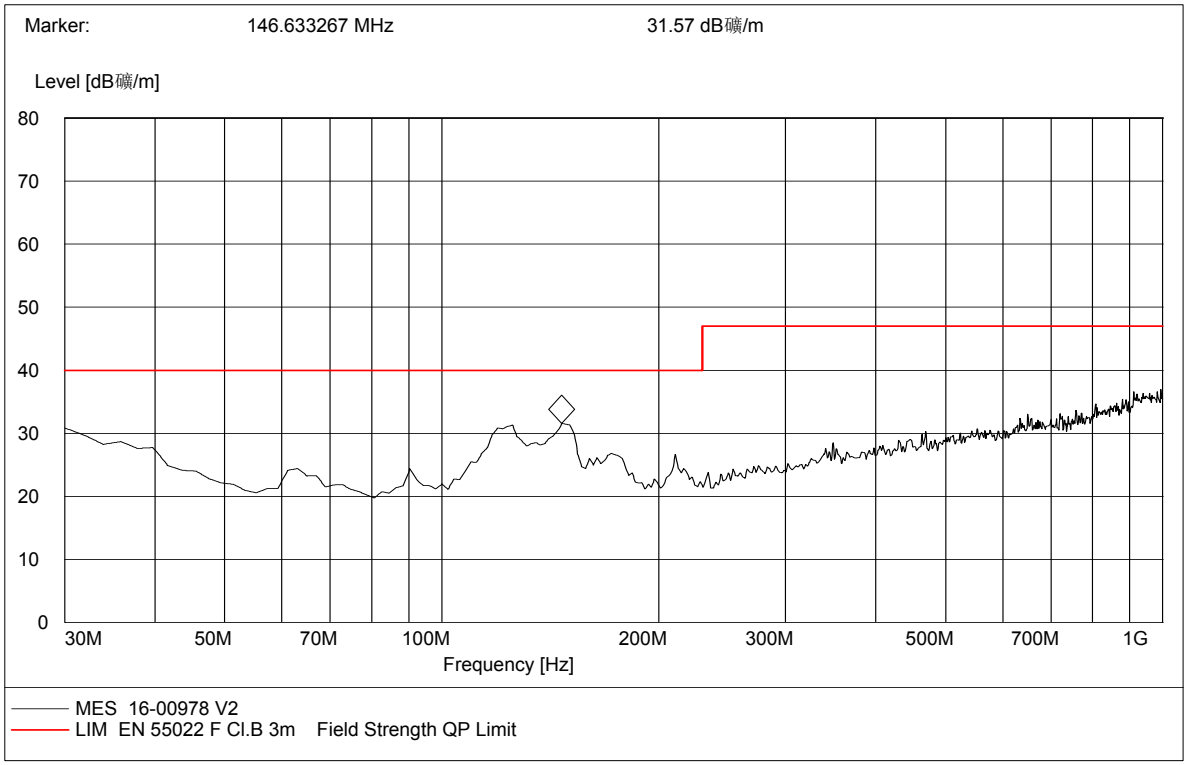
Electromagnetic radiation disturbances, Vertical 1#



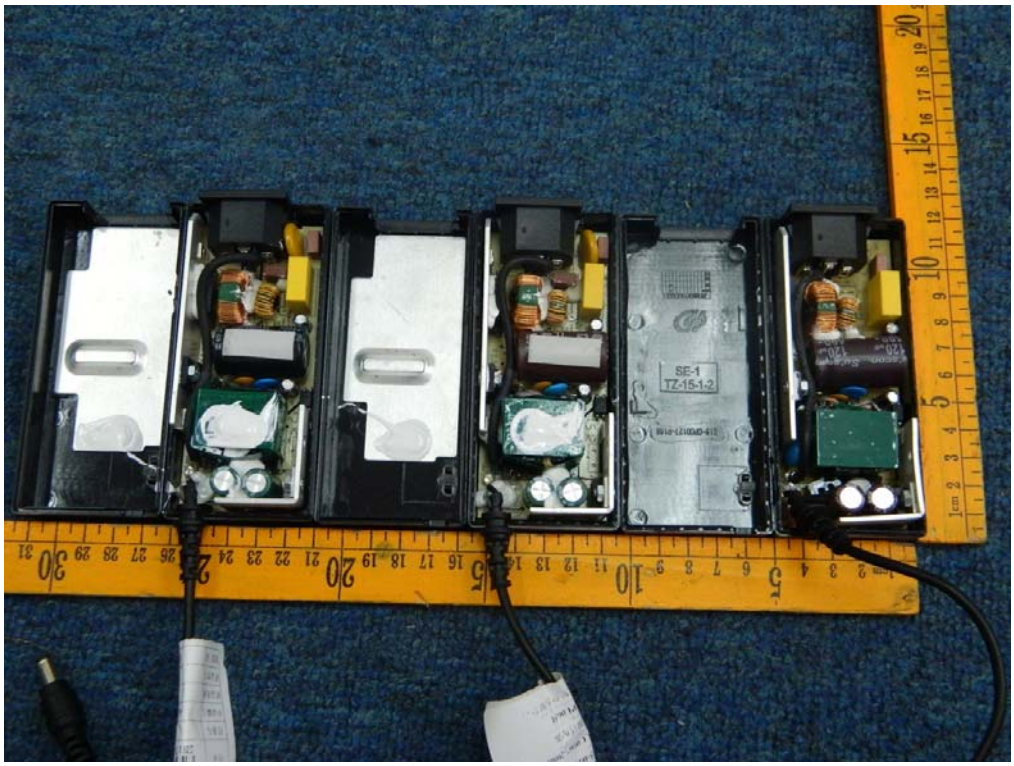
Electromagnetic radiation disturbances, Horizontal 2#

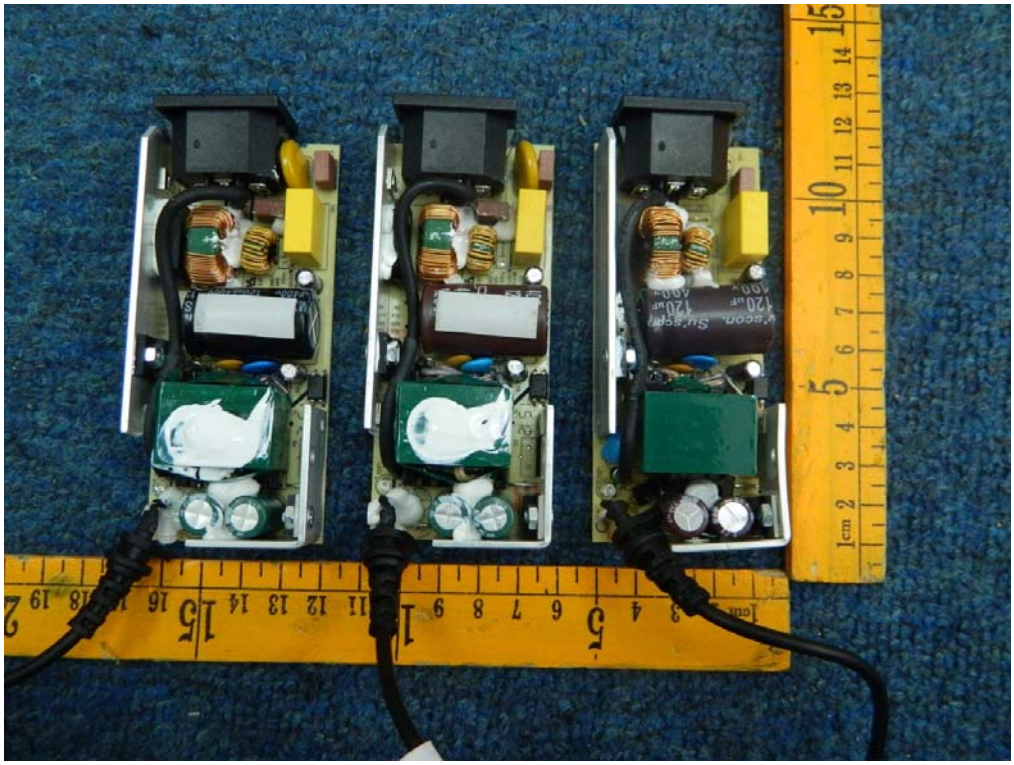


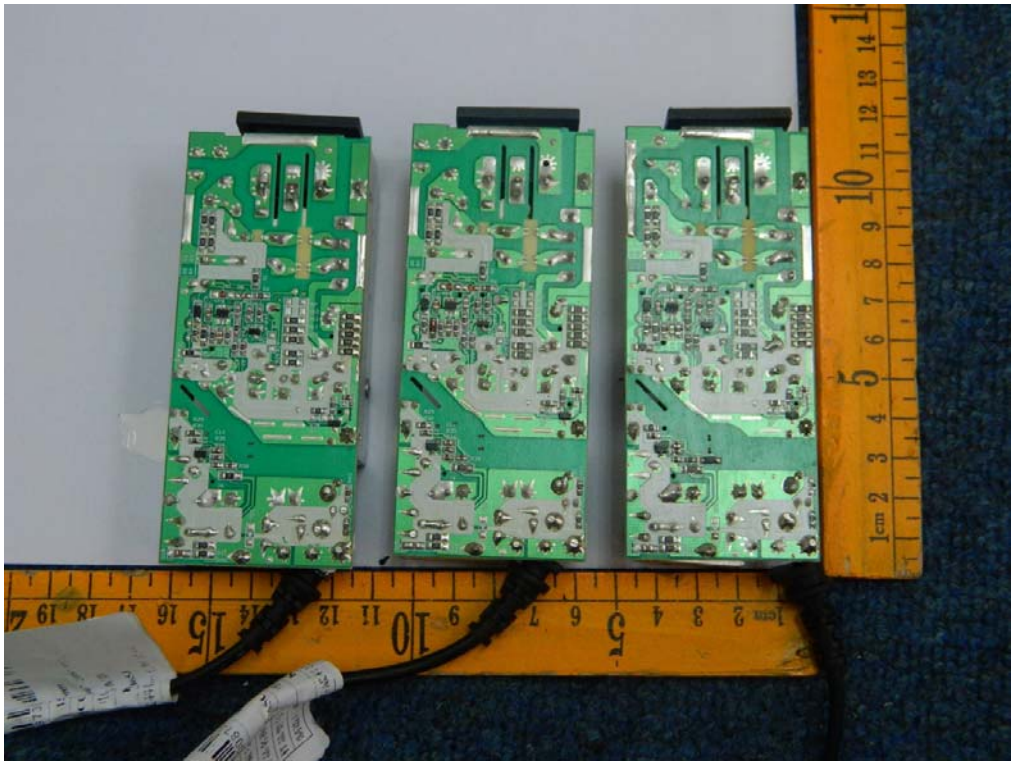
Electromagnetic radiation disturbances, Vertical 2#



Appendix I：Photographs of the EUT

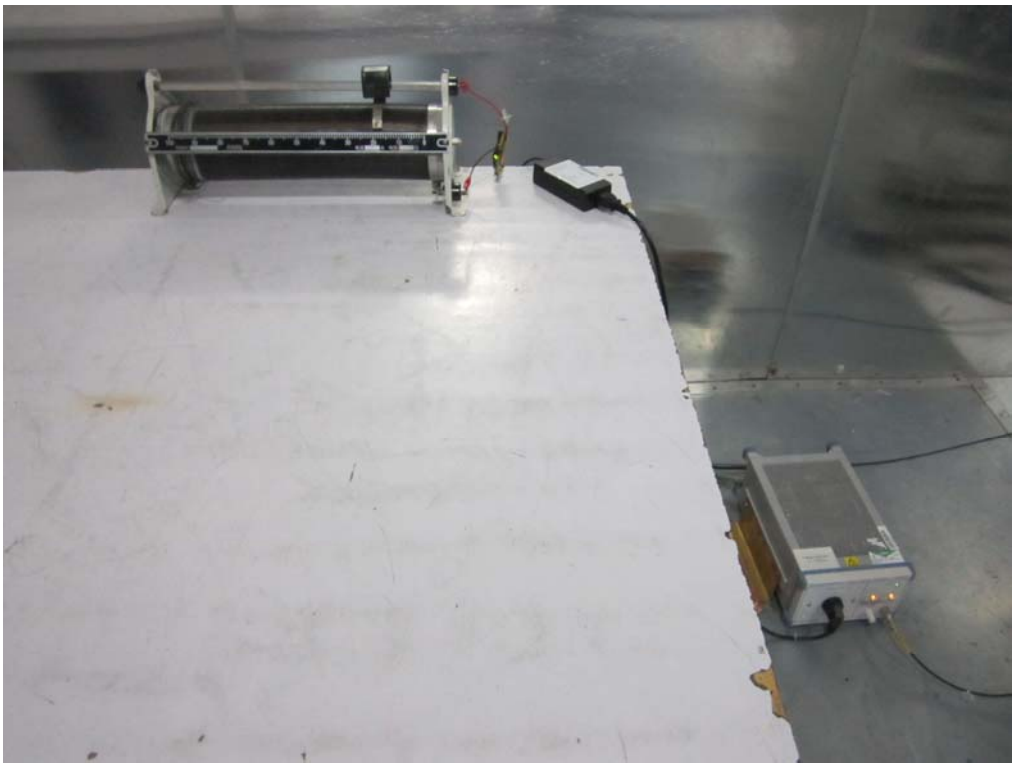






Appendix II：Photographs of EMC Test Configuration

1. Mains Terminal Disturbance Voltage Measurement



2. Radiated Field Strength Measurement