FCC DoC
TEST REPORT

for

Operator Panel

MODEL: xxxxxAOP-8080XT-xxxxxxx

Test Report Number:
70723201-F

Issued to:

AAEON Technology Inc.

**5F, No.135, Lane 235, Pao Chiao Rd., Hsin-Tien City,
Taipei, Taiwan, R.O.C.**

Issued by:

Compliance Certification Services Inc.
Sindian BU
No.163-1, Jhongsheng Rd., Sindian City,
Taipei County 23151, Taiwan
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Issued Date: August 13, 2007

ACCREDITED
No. 0824-01

Testing Laboratory
1108

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Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00				Initial Issue	ALL	

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1 TEST RESULT CERTIFICATION

Product:	Operator Panel
Model:	xxxxxAOP-8080XT-xxxxxxx(x is 0-9, A-Z, - or blank)
Brand:	AAEON
Applicant:	**AAEON Technology Inc.** 5F, No.135, Lane 235, Pao Chiao Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C.
Manufacturer:	**AAEON Technology Inc.** 5F, No.135, Lane 235, Pao Chiao Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C.
Tested:	July 20, 2007 & July 24, 2007

EMISSION			
Standard	**Item**	**Result**	**Remarks**
FCC 47 CFR Part 15 Subpart B, ICES-003 Issue 4 ANSI C63.4-2003	Conducted (Main Port)	PASS	Meet Class A limit
	Radiated	PASS	Meet Class A limit

Note: *1. The test result judgment is decided by the limit of measurement standard.*
2. The information of measurement uncertainty is available upon the customer's request.

Deviation from Applicable Standard
None

The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Rick Yeo

Rick Yeo
Manager of Sindian BU

Reviewed by:

Vince Chiang

Vince Chiang
Assistant Manager of Sindian BU

2 EUT DESCRIPTION

Product	Operator Panel
Brand Name	AAEON
Model	xxxxxAOP-8080XT-xxxxxxx(x is 0-9, A-Z, - or blank)
Applicant	AAEON Technology Inc.
Housing material	Plastic w/ metal plate
Serial Number	N/A
Received Date	July 23, 2007
EUT Power Rating	5VDC from AC Adaptor
AC Power During Test	120VAC / 60Hz to AC Adaptor
AC Adaptor Manufacturer	SINPRO
AC Adaptor Model Number	SPU50-1
Power Adaptor Power Rating	I/P: 100-240VAC~ 47-63Hz, 1.6A O/P: 5VDC, 10A
DC Power Cable Type	Unshielded, 1.2m (Non-detachable, with a core) to AC Adaptor
EUT I/O Cable Type	Shielded, 0.1m (Detachable)
OSC/Clock Frequencies	14.31818MHz; 25MHz; 24.576MHz; 32.768kHz

I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
1) SIO Port	2	2
2) Video Out Port (VGA)	1	1
3) Earphone Port	1	1
4) LAN Port	1	1
5) USB Port	3	3
6) PS/2 one to two adaptor	1	1

Note: *Client consigns only one model sample to test (Model Number: AOP-8080XT).*

3 TEST METHODOLOGY

3.1. DECISION OF FINAL TEST MODE

The EUT was tested together with the above additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The test configuration/ mode is as the following:

Conduction Mode:

1.	**NORMAL MODE**

Radiation Mode(s):

1.	**NORMAL MODE**
	NORMAL MODE / 1-6.5GHz

Conduction: Mode 1

Radiation: Mode 1

3.2. EUT SYSTEM OPERATION

1. Windows XP boots system.
2. Run Emctest.exe to activate all peripherals and display “H” pattern on monitor screen.
3. Run Wimemc.exe and choose media player to play music.
4. Run Winemc.exe and choose “F:/ & G:/ & H:/” to test EUT.
5. Press the start menu, select executive and type ping 192.168.0.2–t (EUT), ping 192.168.0.1 –t (Server PC).

Note: *Test program is self-repeating throughout the test.*

4 SETUP OF EQUIPMENT UNDER TEST

4.1. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

EUT Devices:

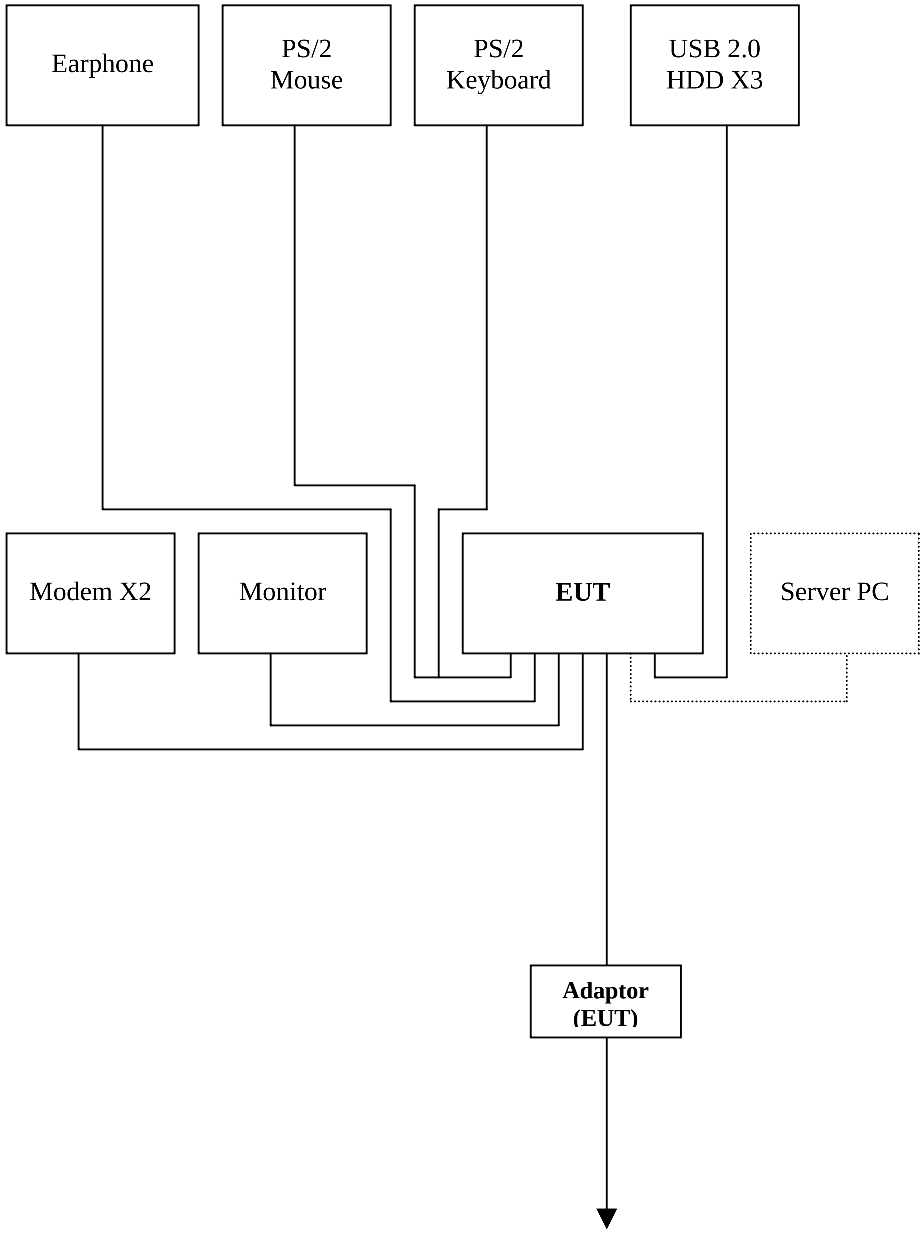
No.	Equipment	Model No.	Trade Name
1.	CPU (1.3GHz)	Celeron M Processor 1.3GHz	Intel
2.	Hard Disk	MHT2040AT/40GB	FUJITSU
3.	Memory	512MB DDR333MHZ/ELPIDA D5116AFTA-6B-E	DSL

Peripherals Devices:

No.	Equipment	Model No.	Serial No.	FCC ID/ BSMI ID	Trade Name	Data Cable	Power Cord
1.	Earphone	MSB301	N/A	N/A	e-Sense	Unshielded, 1.7m	N/A
2.	PS/2 Mouse	M071KC	443029438	DoC BSMI: R41108	DELL	Shielded, 1.8m	N/A
3.	PS/2 Keyboard	SK-8110	N/A	DoC BSMI: T3A002	DELL	Shielded, 1.8m	N/A
4.	USB 2.0 HDD	F12-U	N/A	BSMI ID: 4912A002	Terasys	Shielded, 1.8m	N/A
5.	USB 2.0 HDD	F12-U	N/A	BSMI ID: 4912A002	Terasys	Shielded, 1.8m	N/A
6.	USB 2.0 HDD	F12-U	N/A	BSMI ID: 4912A002	Terasys	Shielded, 1.8m	N/A
7.	Modem	5JEG4033MKO	N/A	5RJTAI-35500-M5-E	TOP-SOLUTION	Shielded, 1.8m	Unshielded, 1.8m
8.	Modem	5JEG4033MKO	N/A	5RJTAI-35500-M5-E	TOP-SOLUTION	Shielded, 1.8m	Unshielded, 1.8m
9.	Monitor	710V	GS17H9NXA05853A	DoC BSMI: R33475	SAMSUNG	Shielded, 1.8m with two cores	Unshielded, 1.8m
10.	Server PC	DCNE	CV8DH1S	BSMI: R33002	DELL	Unshielded, 20m	Unshielded, 1.8m

Note:
1) *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2) *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

4.2. CONFIGURATION OF SYSTEM UNDER TEST



5 FACILITIES AND ACCREDITATIONS

5.1. FACILITIES

All measurement facilities used to collect the measurement data are located at
CCS Taiwan Sindian BU at No.163-1, Jhongsheng Rd., Sindian City, Taipei County 23151, Taiwan.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA
Taiwan	TAF, BSMI

Copies of granted accreditation certificates are available for downloading from our web site,
http://www.ccsemc.com.tw

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	± 1.7376
Radiated emissions	30MHz ~ 200MHz	± 3.8792
	200MHz ~1000MHz	± 3.8914

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

6 CONDUCTED EMISSION MEASUREMENT

6.1. LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE:
(1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
(3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

6.2. TEST INSTRUMENTS

Conducted Emission room # A				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
TEST RECEIVER	R&S	ESHS20	840455/006	02/12/2008
LISN (EUT)	SCHWARZBECK	NSLK 8127	8127382	12/06/2007
LISN	SOLAR	8012-50-R-24-BNC	8305114	12/26/2007
BNC CABLE	Huber+Suhner	RG-223/U	BNC A2	05/13/2008
THERMO-HYGRO METER	TOP	HA-202	9303-1	02/04/2008
Test S/W	EMI 32.exe			

NOTE: *1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.*
2. N.C.R = No Calibration Request.

6.3. TEST PROCEDURES (please refer to measurement standard or CCS SOP PA-031)

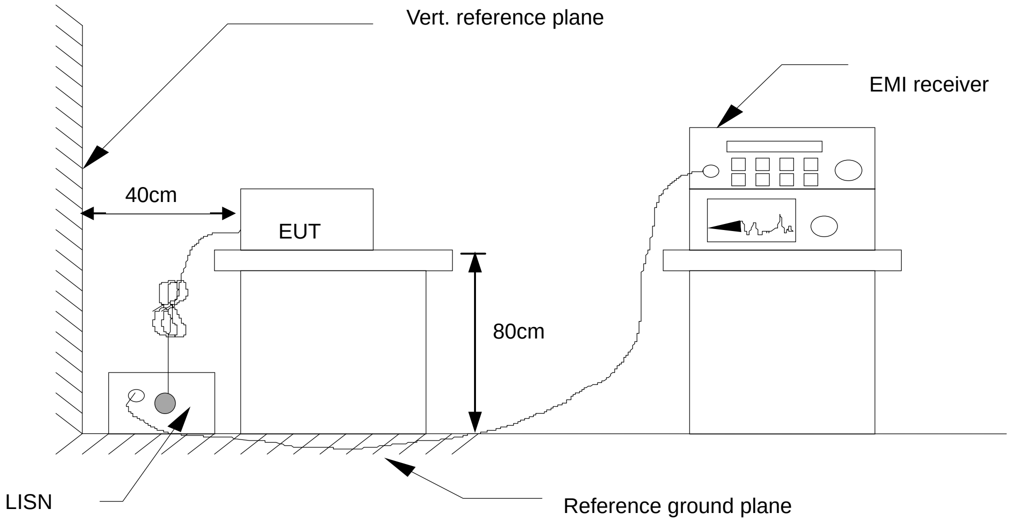
Procedure of Preliminary Test

- The EUT and Support equipment, if needed, was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor standing equipment, it is placed on the ground plane, which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- The test equipment EUT installed received AC main power, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.
- All support equipment power received from a second LISN.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- During the above scans, the emissions were maximized by cable manipulation.
- The test mode(s) described in Item 3.1 were scanned during the preliminary test.
- After the preliminary scan, we found the test mode described in Item 3.1 producing the highest emission level.
- The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

Procedure of Final Test

- EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- The test data of the worst-case condition(s) was recorded.

6.4. TEST SETUP



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

6.5. DATA SAMPLE

Freq. MHz	Read Level dBuV	Factor dB	Level dBuV	Limit dBuV	Over Limit dB	Reading Type (P/Q/A)	Line (L1/L2)
x.xx	42.95	0.55	43.50	73	-29.50	Q	L1

Freq. = Emission frequency in MHz
Read Level = Uncorrected Analyzer/Receiver reading
Factor = Insertion loss of LISN + Cable Loss
Level = Read Level + Factor
Limit = Limit stated in standard
Over Limit = Reading in reference to limit
P = Peak Reading
Q = Quasi-peak Reading
A = Average Reading
L1 = Hot side
L2 = Neutral side

Calculation Formula

Over Limit (dB) = Level (dBuV) – Limit (dBuV)

6.6. TEST RESULTS

Model No.	AOP-8080XT	6dB Bandwidth	10 KHz
Environmental Conditions	26°C, 50% RH, 1010mbar	Test Mode	Mode 1
Tested by	John Yen		

(The chart below shows the highest readings taken from the final data.)

Six Highest Conducted Emission Readings							
Frequency Range Investigated				150 KHz to 30 MHz			
Freq (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Reading Type (P/Q/A)	Line (L1/L2)
0.217	**49.83**	**0.40**	**50.23**	**79.00**	**-28.77**	**P**	**L1**
1.433	**41.22**	**0.65**	**41.87**	**73.00**	**-31.13**	**P**	**L1**
3.860	**36.83**	**0.71**	**37.54**	**73.00**	**-35.46**	**P**	**L1**
0.223	**48.25**	**0.11**	**48.36**	**79.00**	**-30.64**	**P**	**L2**
1.568	**40.98**	**0.16**	**41.14**	**73.00**	**-31.86**	**P**	**L2**
3.943	**36.17**	**0.31**	**36.48**	**73.00**	**-36.52**	**P**	**L2**

NOTE: *1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*
2. The emission level was or more than 2dB below the Average limit, so no re-check anymore.

7 RADIATED EMISSION MEASUREMENT

7.1. LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	dBuV/m (At 10m)	
	Class A	Class B
30 ~ 230	40	30
230 ~ 1000	47	37

***NOTE**: (1) The lower limit shall apply at the transition frequencies.*
(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

7.2. TEST INSTRUMENTS

Open Area Test Site # I				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
SITE NSA	CCS	I Site	N/A	10/13/2007
MEASURE RECEIVER	SCHAFFNER	SCR3501	338	07/03/2008
SPECTRUM ANALYZER	ADVANTEST	R3132	120900008	No Calibration Required
ANTENNA	SCHAFFNER	CBL 6112B	2809	09/22/2007
AMPLIFIER	SCHAFFNER	CPA9231A	3626	10/10/2007
CABLE	BELDEN	9913	N-TYPE #I2	02/25/2008
ATTENUATOR	MCL	UNAT-6	AT06-3	10/10/2007
THERMO-HYGRO METER	TFA	N/A	NO.2	10/26/2007
Test S/W	Lab VIEW 7.1			

***NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.*
2. N.C.R = No Calibration Request.

7.3. TEST PROCEDURES (please refer to measurement standard or CCS SOP PA-031)

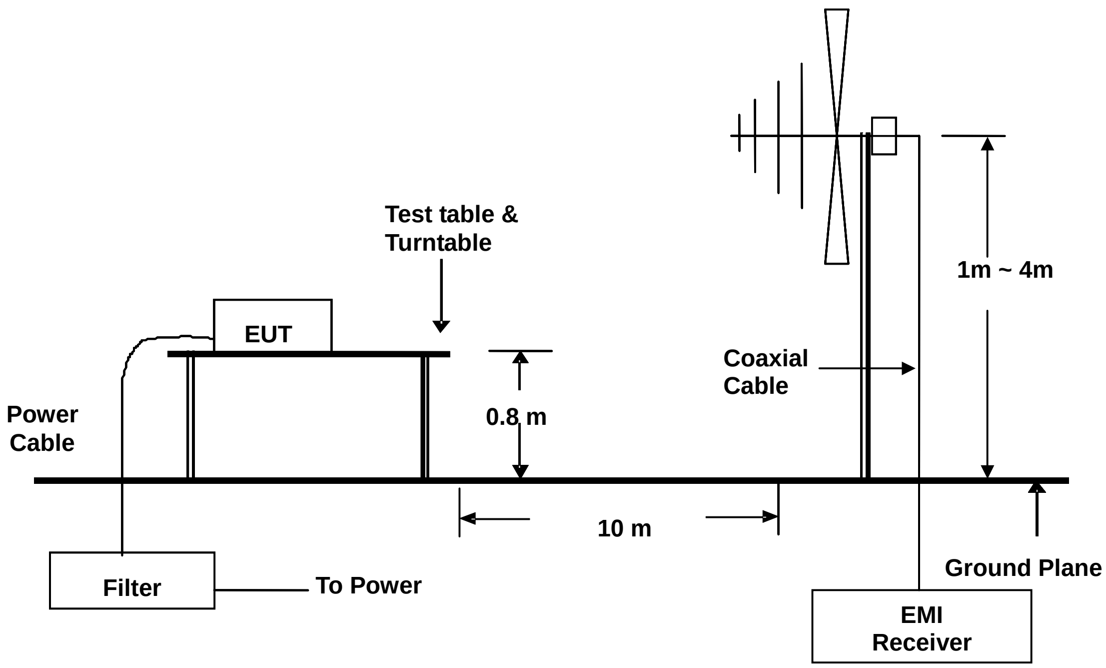
Procedure of Preliminary Test

- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per ANSI C63.4.
- All I/O cables were positioned to simulate typical usage as per ANSI C63.4.
- The EUT received AC power source from the outlet socket under the turntable. All support equipment power received from another socket under the turntable.
- The antenna was placed at 10 meter away from the EUT as stated in ANSI C63.4. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.
- The Analyzer / Receiver quickly scanned from 30MHz to 6500MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- The test mode(s) described in Item 3.1 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in Item 3.1 producing the highest emission level.
- The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

- EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 6500MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.
- The test data of the worst-case condition(s) was recorded.

7.4. TEST SETUP



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

7.5. DATA SAMPLE

Freq. MHz	Read Level dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Over Limit dB	Reading Type (P/Q/A)	Pol. (H/V)
x.xx	14.0	12.2	26.2	40	-13.8	Q	H

Freq. = Emission frequency in MHz
Read Level = Uncorrected Analyzer/Receiver reading
Factor = Antenna Factor + Cable Loss + Attenuator (3/6/10dB) – Amplifier Gain
Level = Read Level + Factor
Limit = Limit stated in standard
Over Limit = Reading in reference to limit
P = Peak Reading
Q = Quasi-peak Reading
A = Average Reading
H = Antenna Polarization: Horizontal
V = Antenna Polarization: Vertical

Calculation Formula

Over Limit (dB) = Level (dBuV/m) – Limit (dBuV/m)

7.6. TEST RESULTS

Model No.	AOP-8080XT	**Test Mode**	Mode 1
Environmental Conditions	30°C, 55% RH, 1010mbar	**6dB Bandwidth**	120 KHz
Antenna Pole	Vertical	**Antenna Distance**	10m
Detector Function	Quasi-peak.	**Tested by**	Benson Yang

(The chart below shows the highest readings taken from the final data.)

Six Highest Radiated Emission Readings							
Frequency Range Investigated				**30 MHz to 1000 MHz at 10m**			
Freq (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Reading Type (P/Q/A)	Pol. (H/V)
60.020	**43.30**	**-18.04**	**25.26**	**40.00**	**-14.74**	**Q**	**V**
72.020	**42.10**	**-14.65**	**27.45**	**40.00**	**-12.55**	**Q**	**V**
120.020	**35.00**	**-8.88**	**26.12**	**40.00**	**-13.88**	**Q**	**V**
125.010	**35.70**	**-9.15**	**26.55**	**40.00**	**-13.45**	**Q**	**V**
159.760	**41.20**	**-10.53**	**30.67**	**40.00**	**-9.33**	**Q**	**V**
400.030	**32.70**	**-3.02**	**29.68**	**47.00**	**-17.32**	**Q**	**V**

REMARKS: *1. 30MHz to 1000MHz test is Applicable CISPR 22 / EN 55022 standard.*
2. The other emission levels were very low against the limit.
3. P= Peak Reading; Q= Quasi-peak Reading A= Average Reading

Model No.	AOP-8080XT	Test Mode	Mode 1
Environmental Conditions	30°C, 55% RH, 1010mbar	6dB Bandwidth	120 KHz
Antenna Pole	Horizontal	Antenna Distance	10m
Detector Function	Quasi-peak.	Tested by	Benson Yang

(The chart below shows the highest readings taken from the final data.)

Six Highest Radiated Emission Readings							
Frequency Range Investigated				30 MHz to 1000 MHz at 10m			
Freq (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Reading Type (P/Q/A)	Pol. (H/V)
72.020	**41.20**	**-14.65**	**26.55**	**40.00**	**-13.45**	**Q**	**H**
86.030	**38.10**	**-13.07**	**25.03**	**40.00**	**-14.97**	**Q**	**H**
125.020	**33.50**	**-9.15**	**24.35**	**40.00**	**-15.65**	**Q**	**H**
133.230	**34.50**	**-9.58**	**24.92**	**40.00**	**-15.08**	**Q**	**H**
159.760	**43.00**	**-10.53**	**32.47**	**40.00**	**-7.53**	**Q**	**H**
300.040	**37.70**	**-5.98**	**31.72**	**47.00**	**-15.28**	**Q**	**H**

REMARKS: *1. 30MHz to 1000MHz test is Applicable CISPR 22 / EN 55022 standard.*

2. The other emission levels were very low against the limit.

3. P= Peak Reading; Q= Quasi-peak Reading A= Average Reading

8 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

RADIATED EMISSION TEST