# FCC CFR47 PART 15 DIGITAL DEVICE

# TEST REPORT

# FOR

# CPU BOARD

**MODEL: PCM-6898 (N)**

**REPORT NUMBER: 01E9672**

**ISSUE DATE: AUGUST 28, 2001**

*Prepared for*

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

*Prepared by*

**COMPLIANCE ENGINEERING SERVICES, INC.**
**No. 199, CHUNG SHENG ROAD**
**HSIN TIEN CITY, TAIPEI, TAIWAN R.O.C.**
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**LAB CODE: SL2-IN-E-0005**

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4, SEC. 1, CHINAN ROAD, TAIPEI, TAIWAN, R. O. C.
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To: Compliance Engineering Services, INC.

No.199 Chung Sheng Road, Hsin Tien City,
Taipei Hsien, Taiwan, R.O.C.

IN REPLY REFER TO
89-3-3000061

This Designation Document confirms that your subject measurement facility has been validated according to the **ISO/IEC Guide 25-1990** and found to be in compliance with the requirements of "Operation Guidelines of the Approval and Management of Designated EMC Laboratories."

The description of your facility has, therefore, been placed on file and the name of your organization added to the Bureau's list of facilities whose measurement data and test reports will be accepted as a basis for attesting conformity to CNS13438-1997 / CISPR22-1993, CNS13783-1-1996/ CISPR14 - 1993, CNS13439-1997 / CISPR13-1990 for Information Technology Equipment、household appliances / tools、broadcast receivers and related equipments.

It is located at: **http://www.bsmi.gov.tw**

Please reference the file numbers below in the body of all test reports containing measurements made on the corresponding facility.

For your **EMI Testing Lab**, use reference " **SL2-IN-E-0005, SL2-R1-E-0005, SL2-R2-E-0005, SL2-A1-E-0005**"

Note that this filing must be updated for any changes made to the documentation and / or facility and whenever major modifications to your documentation or major construction or repairs to your facility are completed, re-submission of the related information or the site attenuation characteristics will be required within 2 weeks.

The Designation is valid through January 10, 2003.

Taipei, February 3, 2000
For BSMI, MOEA

Chen Tso-Chen
Director General

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COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254

## 1. VERIFICATION OF COMPLIANCE

NVLAP LAB CODE: SL2-IN-E-0035

COMPANY NAME: AAEON Technology Inc.
5F, No. 135, Lane 235, Pao Chiao Rd.,
Hsin-Tien City, Taipei,
Taiwan, R. O. C.

CONTACT PERSON: Jack Chao / Deputy Director

TELEPHONE NO: 8919-1234 # 358

MODEL NO/NAME: PCM-6898 (N)

SERIAL NO: N/A

DATE TESTED: AUGUST 06 ~ AUGUST 22, 2001

| | |
|---|---|
| TYPE OF EQUIPMENT: | INFORMATION TECHNOLOGY EQUIPMENT (ITE) |
| MEASUREMENT DISTANCE: | ( x ) 3 METER ( x ) 10 METER |
| TECHNICAL LIMIT: | Class B |
| FCC RULES: | PART 15 |
| MEASUREMENT PROCEDURE | ANSI C63.4:92 / EN55022 |
| EQUIPMENT AUTHORIZATION PROCEDURE | DECLARATION OF CONFORMITY |
| MODIFICATION MADE ON EUT | ☐ YES ☒ NO |
| DEVIATIONS FROM MEASUREMENT PROCEDURE | ☐ YES (refer to section 21 for comments)<br>☒ NO |
| RADIATED EMISSION TEST RESULT | -3.02 dB @ 930.356 MHz / HORIZONTAL |
| CONDUCTED EMISSION TEST RESULT | -0.93 dB @ 0.775 MHz / L2 |

The above equipment was tested by Compliance Engineering Services, Inc. for compliance with the requirements set forth in the FCC CFR 47, PART 15. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

*Approved By*

Rick Yeo

RICK YEO / EMC MANAGER
COMPLIANCE ENGINEERING SERVICES

*Acknowledged By*

Jack Chao / Deputy Director
AAEON Technology Inc.

# SYSTEM DESCRIPTION

## EUT Test Procedure:

1. Windows 98 Boots System.
2. Run Winemc.Exe To Activate All Peripherals And Display “H” Pattern On Monitor Screen.
3. Run ReadWrite.Exe to Link EUT and Notebook PC.
4. Data Through the EUT and Transmit Between PC Systems and Notebook PC Via RJ45 Cable.


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# PRODU INFORMATION

| | |
|---|---|
| **Housing Type:** | METAL |
| **EUT Power Rating:** | Input: AC 100 ~ 127V/5A/60Hz; 200 ~ 240V/2.5A/50Hz<br>Output: DC +3.3V: 25A, +5V: 12A, +12V: 5A, -5V: 0.2A, -12V: 1A, +5Vsb: 2A |
| **AC power during Test:** | AC 110V, 60Hz |
| **Power Supply Manufacturer:** | CEMACS |
| **Power Supply Model Number:** | ENP-181 |
| **AC Power Cord Type:** | Unshielded, 1.8m (Detachable) |
| **OSC/Clock Frequencies：** | X1 = 14.318 MHz, X3 = 24.576 MHz,<br>X4 = 14.318 MHz, Y2 = 25 MHz |

**I/O Port of EUT:**

| I/O PORT TYPES | Q'TY | TESTED WITH |
|---|---|---|
| 1). USB Port | 2 | 2 |
| 2). PS/2 Port | 2 | 2 |
| 3). RJ45 Port | 1 | 1 |
| 4). DB9 Port | 2 | 2 |
| 5). DB15 Port | 2 | 2 |
| 6). DB25 Port | 1 | 1 |
| 7). Phone Jack | 3 | 3 |
| 8). RCA | 1 | 1 |

**Note: N/A**


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# SUPPORT EQUIPMENT

**Host Computer:**

| Equipment | Model# | Serial# | Trade Name |
|---|---|---|---|
| HDD | 72700AP | N/A | Maxtor |
| RAM (SDRAM 64MB) | NT56V6620C0T-75S | N/A | NANYA |
| CPU | P-III 800MHz | N/A | INTEL |
| Chassis | ARC-6100 | N/A | N/A |
| Power Supply | ENP-181 | N/A | CEMACS |

**External Peripheral Devices:**

| No | Equipment | Model # | Serial # | FCC ID | Trade Name | Data Cable | Power Cord |
|---|---|---|---|---|---|---|---|
| 1. | Keyboard | 6311-TW4C/6 | N/A | DoC | ACER | Un-Shielded, 1.8m | N/A |
| 2. | Mouse | M-BB48 | LZE93851294 | DoC | Logitech | Un-Shielded, 1.8m | N/A |
| 3. | Mouse | M-S34 | LZE02353706 | DZL211029 | Logitech | Un-Shielded, 1.8m | N/A |
| 4. | Mouse | M-BB46 | N/A | DoC | Logitech | Un-Shielded, 1.8m | N/A |
| 5. | Player | RQ-L317 | N/A | N/A | Panasonic | Un-Shielded, 0.8m | N/A |
| 6. | EAR. & MIC. | MSB-206 | N/A | N/A | E.SENSE | Un-Shielded, 2.2m | N/A |
| 7. | Joystick | SIDEWINDER PRECISION PRO | N/A | N/A | Microsoft | Un-Shielded, 2.2m | N/A |
| 8. | Server PC | Valiant 6380iPID | SPL052980024 | DoC | KDS | Un-Shielded, 30m (RJ45) | Unshielded, 1.8m |
| 9. | Monitor | RN15AS | N/A | DoC | SAMSUNG | Un-Shielded, 1m | Unshielded, 1.8m A Ferrite Core |
| 10. | Monitor | SYNCMASTER959NF | N/A | DoC | SAMSUNG | Shielded, 1.8m Two Ferrite Core | Unshielded, 1.8m |
| 11. | Modem | 1414 | N/A | IFAXDM1414 | ACEEX | Shielded, 1.4m | Unshielded, 1.8m |
| 12. | Modem | 231AA | A25331083841 | BFJ9D9308US | HAYES | Shielded, 1m | Unshielded, 1.8m |
| 13. | Printer | 2225C+ | 2927S50444 | DSI6XU2225 | HP | Shielded, 1.8m | Unshielded, 1.8m |

**Note:** All the above equipment/cables were placed in worse case positions to maximize emission signals.

**Grounding:** Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.


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# MEASUREMENT PROCEDURE
## (PRELIMINARY LINE CONDUCTED EMISSION TEST)

1) The equipment was set up as per the test configuration to simulate typical actual 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.

2) Support equipment, if needed, was placed as per ANSI C63.4.

3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

4) The EUT received DC power through Power Supply and Line Impedance Stabilization Network (LISN) which supplied power source of 110VAC/ 60Hz and was grounded to the ground plane.

5) All support equipment received power from a second LISN supplying power of 110VAC/60Hz, if any.

6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.

7) Analyzer / Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.

8) During the above scans, the emissions were maximized by cable manipulation.

9) The following test mode(s) were scanned during the preliminary test:

**Mode(s):**

**1. Normal Mode (Data No.: 9672E# 8, 16; Date: 08/07/2001)**

10) After the preliminary scan, we found the following test mode(s) producing the highest emission level.

**Mode(s): 1.**

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

# MEASUREMENT PROCEDURE
## (FINAL LINE CONDUCTED EMISSION TEST)

1) EUT and support equipment was set up on the test bench as per step 10 of the preliminary test.

2) 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. If EUT emission level was less –2dB to the A.V. limit in Q.P. mode, then the emission signal was re-checked using an Average detector.

3) The test data of the worst case condition(s) was reported on the Summary Data page.

**Data Sample:**

| Freq (MHz) | Meter Reading (dBuV) | C.F. (dB) | Corrected Reading (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Reading Type (P/Q/A) | Line (L1/L2) |
|---|---|---|---|---|---|---|---|
| **x.xx** | **x.xx** | **x.xx** | **38.38** | **56.00** | **-17.62** | **P** | **L1** |

C.F.(Correction Factor)=Insertion Loss + Cable Loss
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits

P=Peak Reading L1=Hot
Q=Quasi-peak L2=Neutral
A=Average Reading

Comments: **N/A**

# LINE CONDUCTED EMISSION LIMIT

| Frequency | Maximum RF Line Voltage | |
|---|---|---|
| | Q.P. | AVERAGE |
| 150kHz-500kHz | 66-56dBuV | 56-46dBuV |
| 500kHz-5MHz | 56dBuV | 46dBuV |
| 5MHz-30MHz | 60dBuV | 50dBuV |

**Note:** The lower limit shall apply at the transition frequency.


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# MEASUREMENT PROCEDURE
## (PRELIMINARY RADIATED EMISSION TEST)

1) The equipment was set up as per the test configuration to simulate typical actual 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 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.
2) Support equipment, if needed, was placed as per ANSI C63.4.
3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4) The EUT received DC power source from Host PC to the outlet socket under the turntable. All support equipment received 110VAC/60Hz power from another socket under the turntable, if any.
5) The antenna was placed at 3/10 meter away from the EUT as stated in ANSI C63.4: 1992. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. 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.
7) The following test mode(s) were scanned during the preliminary test:

**Mode:**

**1. Close Chassis (Data No. 9462D# 9, 10; Date: 08/06/2001)**
**2. Open Chassis (Data No. 9672D# 1, 2; Date: 08/22/2001)**
**3. 1 – 5 G (Data No. 9672F# 16, 18; Date: 08/22/2001)**

8) After the preliminary scan, we found the following test mode(s) producing the highest emission level.

**Mode(s): 1.**

Then, the EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for reference of final testing.

# MEASUREMENT PROCEDURE
## (FINAL RAIDATED EMISSION TEST)

1) EUT and support equipment were set up on the turntable as per step 8 of the preliminary test.

2) The Analyzer / Receiver scanned from 30MHz to 1000MHz. 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.

3) 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 Peak reading is presented. If EUT emission level was less-2dB to the limit, then the emission signal was re-checked using a Q.P. detector.

4) The test data of the worst case condition(s) was reported on the Summary Data page.

**Data Sample:**

| Freq (MHz) | Meter Reading (dBuV) | C.F. (dB/m) | Corrected Reading (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Reading Type P/Q/A | Pol. H/V |
|---|---|---|---|---|---|---|---|
| **x.xx** | **x.xx** | **x.xx** | **30.82** | **37.00** | **-5.18** | **P** | **V** |

C.F.(Correction Factor)=Antenna Factor + Cable Loss + Attenuator(3/6 dB) - Amplifier Gain
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading – Limits

P=Peak Reading
Q=Quasi-peak
A=Average Reading

H=Horizontal Polarization/Antenna
V=Vertical Polarization/Antenna

Comments: **N/A**

# RADIATED EMISSION LIMIT

| Frequency (MHz) | Distance (m) | Maximum Field Strength Limit (dBu V/m/ Q.P.) |
|---|---|---|
| 30-230 | 10 | 30 |
| 230-1000 | 10 | 37 |

**Note:** The lower limit shall apply at the transition frequency.

# SUMMARY DATA
# (LINE CONDUCTED TEST)

**Model Number:** PCM-6898 (N) **Location:** Site # E

**Tested by:** James Liao

**Test Model:** Mode 1

**Test Results:** Passed

**Temperature:** 30℃ **Humidity:** 56%RH

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

| Frequency Range Investigated (150 kHz TO 30 MHz) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Freq (MHz) | Meter Reading (dBuV) | C.F. (dB) | Corrected Reading (dBuV) | Limits (dBuV) | Margin (dB) | Reading Type (P/Q/A) | Line (L1/L2) |
| **0.775** | **46.21** | **0.07** | **46.28** | **56.00** | **-9.72** | **P** | **L1** |
| **0.775** | **44.57** | **0.07** | **44.64** | **46.00** | **-1.36** | **A** | **L1** |
| **25.188** | **54.67** | **0.50** | **55.17** | **60.00** | **-4.83** | **P** | **L1** |
| **25.188** | **21.77** | **0.50** | **22.27** | **50.00** | **-27.73** | **A** | **L1** |
| **0.627** | **46.53** | **0.06** | **46.59** | **56.00** | **-9.41** | **P** | **L2** |
| **0.627** | **44.68** | **0.06** | **44.74** | **46.00** | **-1.26** | **A** | **L2** |
| **0.775** | **47.43** | **0.07** | **47.50** | **56.00** | **-8.50** | **P** | **L2** |
| **0.775** | **45.00** | **0.07** | **45.07** | **46.00** | **-0.93** | **A** | **L2** |
| **0.928** | **45.97** | **0.08** | **46.05** | **56.00** | **-9.95** | **P** | **L2** |
| **0.928** | **44.25** | **0.08** | **44.33** | **46.00** | **-1.67** | **A** | **L2** |
| **19.950** | **53.52** | **0.44** | **53.96** | **60.00** | **-6.04** | **P** | **L2** |
| **19.950** | **22.76** | **0.44** | **23.20** | **50.00** | **-26.80** | **A** | **L2** |

C.F.(Correction Factor)=Insertion Loss + Cable Loss
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading L1=Hot
Q=Quasi-peak L2=Neutral
A=Average Reading

Comments: **N/A**


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# SUMMARY DATA

# (RADIATED EMISSION TEST)

**Model Number:** PCM-6898 (N) **Location:** Site # D

**Tested by:** James Liao **Polar:** Vertical / Horizontal– 10m

**Test Mode:** Mode 1

**Test Results:** Passed

**Temperature:** 32℃ **Humidity:** 60%RH

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

| Frequency Range Investigated (30 MHz TO 5000 MHz) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Freq (MHz) | Meter Reading (dBuV) | C.F. (dB/m) | Corrected Reading (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Reading Type P/Q/A | Pol. H/V |
| **199.994** | **35.72** | **-10.01** | **25.72** | **30.00** | **-4.29** | **P** | **V** |
| **533.445** | **32.47** | **-0.36** | **32.11** | **37.00** | **-4.89** | **P** | **V** |
| **797.006** | **27.41** | **5.04** | **32.45** | **37.00** | **-4.55** | **P** | **V** |
| **199.828** | **35.21** | **-10.01** | **25.21** | **30.00** | **-4.80** | **P** | **H** |
| **663.561** | **29.52** | **2.27** | **31.79** | **37.00** | **-5.21** | **P** | **H** |
| **930.356** | **26.60** | **7.38** | **33.98** | **37.00** | **-3.02** | **P** | **H** |

C.F.(Correction Factor)=Antenna Factor + Cable Loss (+ Attenuator/6dB) - Amplifier Gain
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading H=Horizontal Polarization/Antenna
Q=Quasi-peak V=Vertical Polarization/Antenna
A=Average Reading

Comments: **N/A**

# TEST EQUIPMENT LIST (EMISSION)

**Instrumentation:** The following list contains equipment used at Compliance Engineering Services, Inc.. for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2-1988 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 9kHz to 1.0 / 5.0 GHz.

**Equipment used during the tests:**

☒ **Open Area Test Site:** #D

| Equipment | Manuf. | Model No. | Serial No. | Cal Date | Due Date |
|---|---|---|---|---|---|
| EMI TEST DISPLAY | **R&S** | **DSAI-D 804.8932.52** | **827832/001** | **11/05/00** | **11/05/01** |
| EMI TEST RF UNIT | **R&S** | **ESBI-RF/1005.4300.52** | **827832/003** | **11/05/00** | **11/05/01** |
| AMPLIFIER | **HP** | **8447D A** | **2727A05764** | **05/07/01** | **05/07/02** |
| ANTENNA | **SCHWARZBECK** | **VULB 9160** | **3104** | **05/17/01** | **05/17/02** |
| CABLE | **TIME MICROWAVE** | **LMR-400** | **N-TYPE02** | **07/09/01** | **07/09/02** |

☒ **Open Area Test Site:** # E

| Equipment | Manuf. | Model No. | Serial No. | Cal Date | Due Date |
|---|---|---|---|---|---|
| SPECTRUM ANALYZER | **H.P.** | **8566B** | **2937A06102** | **06/06/01** | **06/06/02** |
| SPECTRUM DISPLAY | **H.P.** | **85662A** | **2848A18276** | **06/06/01** | **06/06/02** |
| QUASI-PEAK DETECTOR | **H.P.** | **85650A** | **2811A01439** | **06/07/01** | **06/07/02** |
| AMPLIFIER | **H.P.** | **8447D B** | **1644A02328** | **05/07/01** | **05/07/02** |
| ANTENNA | **EMCO** | **3142** | **1310** | **06/30/01** | **06/30/02** |
| CABLE | **TIME MICROWAVE** | **LMR-400** | **N-TYPE04** | **07/09/01** | **07/09/02** |
| ANTENNA (1-18GHz) | **EMCO** | **3115** | **5761** | **02/23/01** | **02/23/02** |
| CABLE (1-18GHz) | **JYEBAO** | **N30-L142-1** | **N/A** | **03/02/01** | **03/02/02** |
| AMPLIFIER (1-26GHz) | **MITEQ** | **NSP2600-44** | **646455** | **02/26/01** | **02/26/02** |

☒ **Conducted Area Test Site:** # E

| Equipment | Manuf. | Model No. | Serial No. | Cal Date | Due Date |
|---|---|---|---|---|---|
| TEST RECEIVER | **R&S** | **ESHS20** | **840455/006** | **03/15/01** | **03/15/02** |
| LISN | **EMCO** | **3825/2** | **1842** | **01/10/01** | **01/10/02** |
| LISN(EUT) | **EMCO** | **3825/2** | **1435** | **01/10/01** | **01/10/02** |

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.


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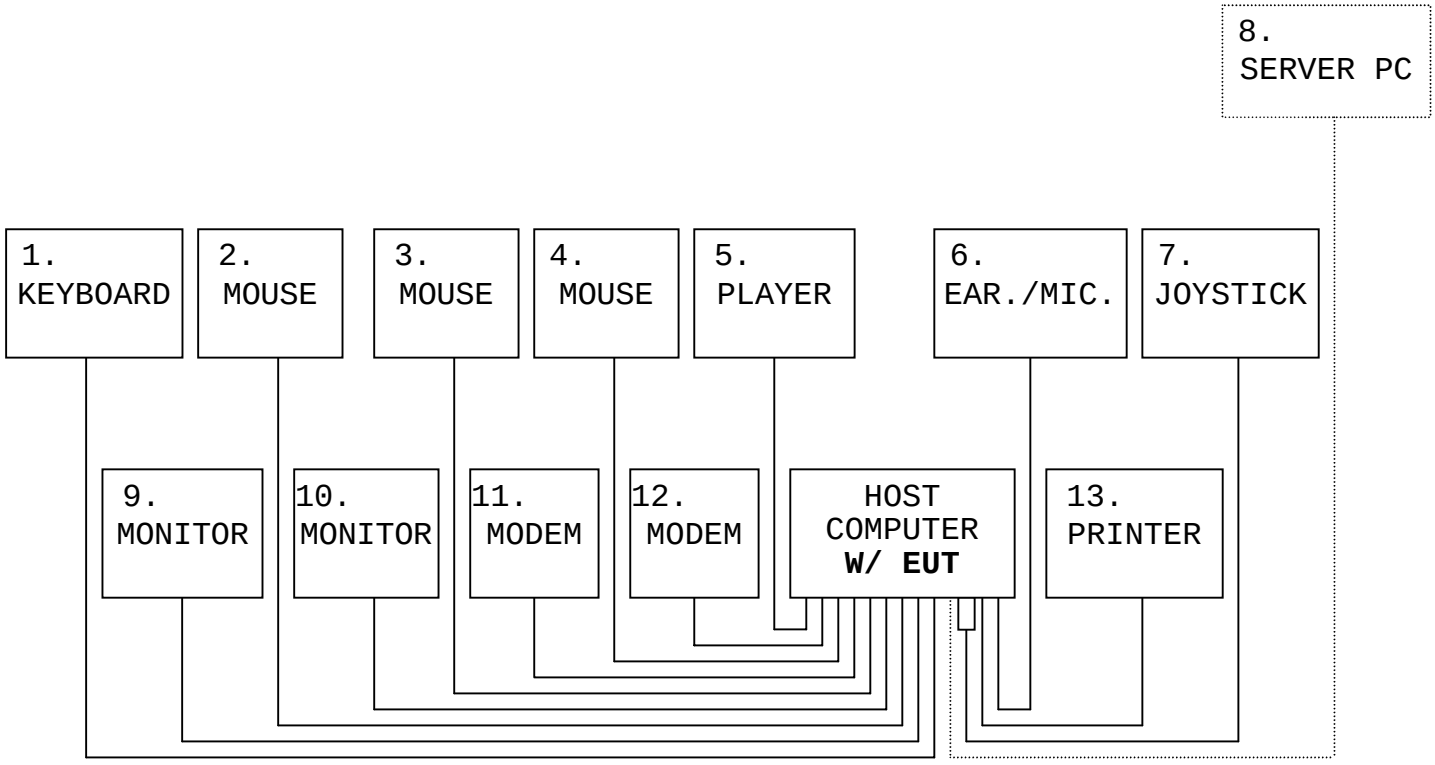
# BLOCK DIAGRAM OF TEST SETUP

**System Diagram of Connections between EUT and Simulators**

**EUT:** CPU BOARD
**Model Number:** PCM-6898 (N)



# APPENDIX 1

# PHOTOGRAPHS OF TEST SETUP
# (TEST SETUP OF LINE CONDUCTED EMISSION )


COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254

# LINE CONDUCTED EMISSION TEST



COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254

# APPENDIX 2

# PHOTOGRAPHS OF TEST SETUP
# (TEST SETUP OF LINE RADIATED EMISSION )


COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254

# RADIATED EMISSION TEST (CLOSE CHASSIS)



COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254

# RADIATED EMISSION TEST (OPEN CHASSIS)



COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254

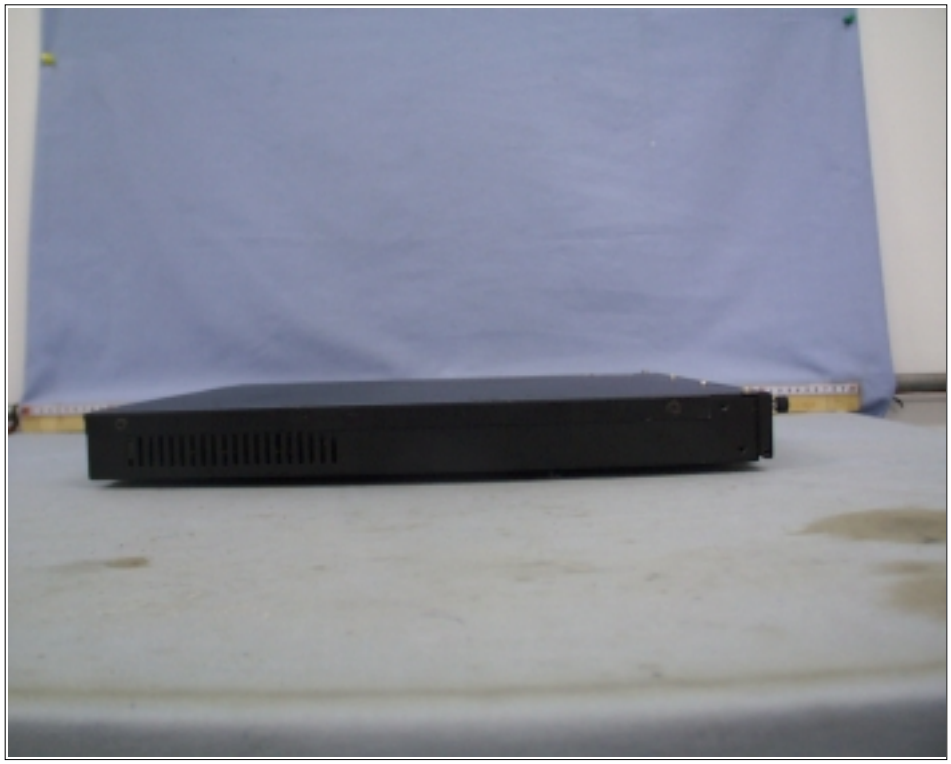
# APPENDIX 3

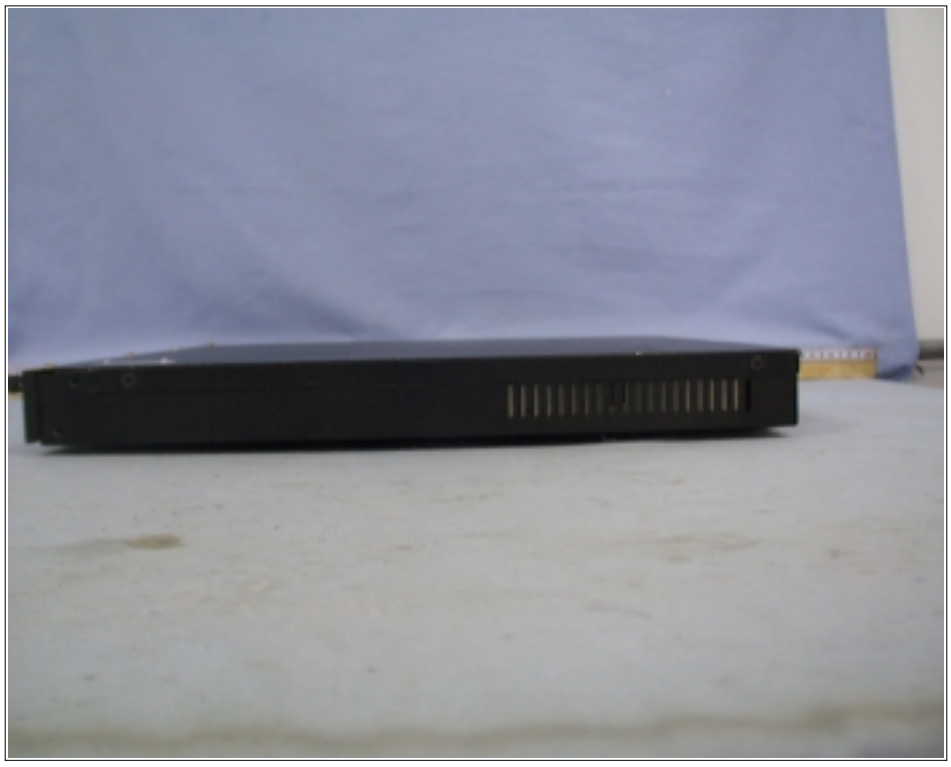
# PHOTOGRAPHS OF EUT


COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254



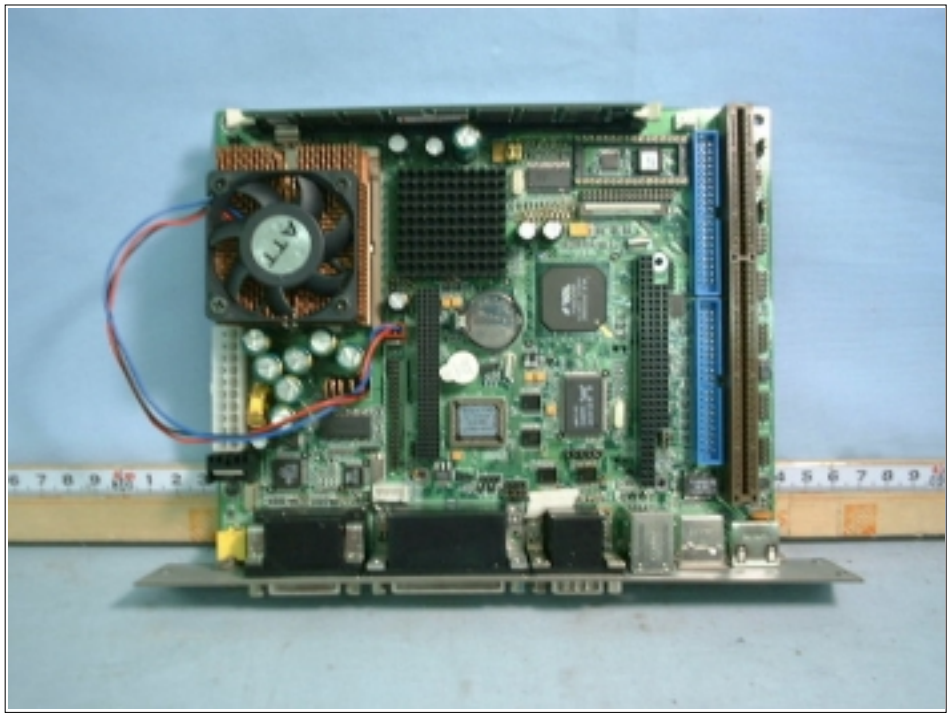
COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254

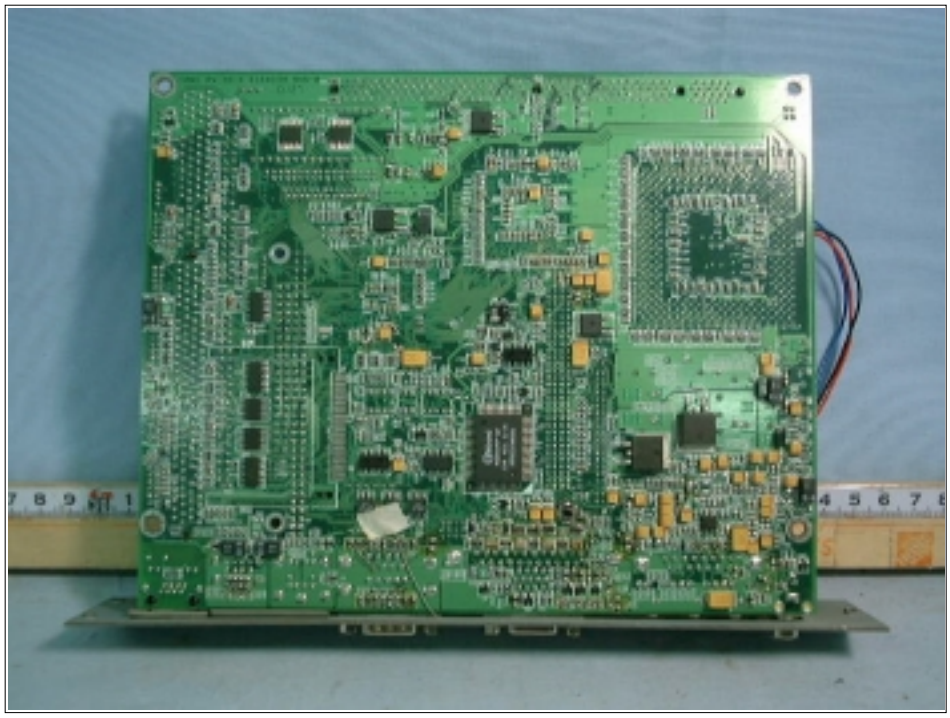


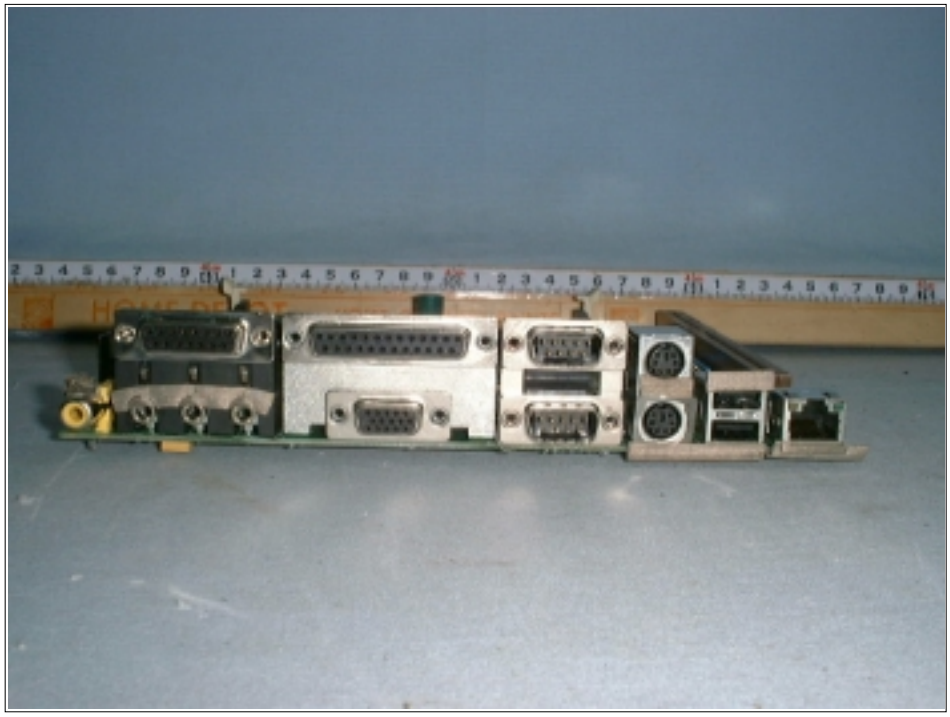




COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254









COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254

# APPENDIX 4

# CONDUCTED EMISSION PLOT
# RADIATED EMISSION DATA


COMPLIANCE ENGINEERING SERVICES, INC. DOCUMENT NO:CCSTP4002B
NO.199, CHUNG SHENG ROAD, HSIN TIEN, TAIPEI, TAIWAN R.O.C. TEL:(02)2217-0894/FAX:2217-1254

COMPLIANCE Engineering Service, Inc.
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UL,CSA,TUV

No. 199, Chung Sheng Road,
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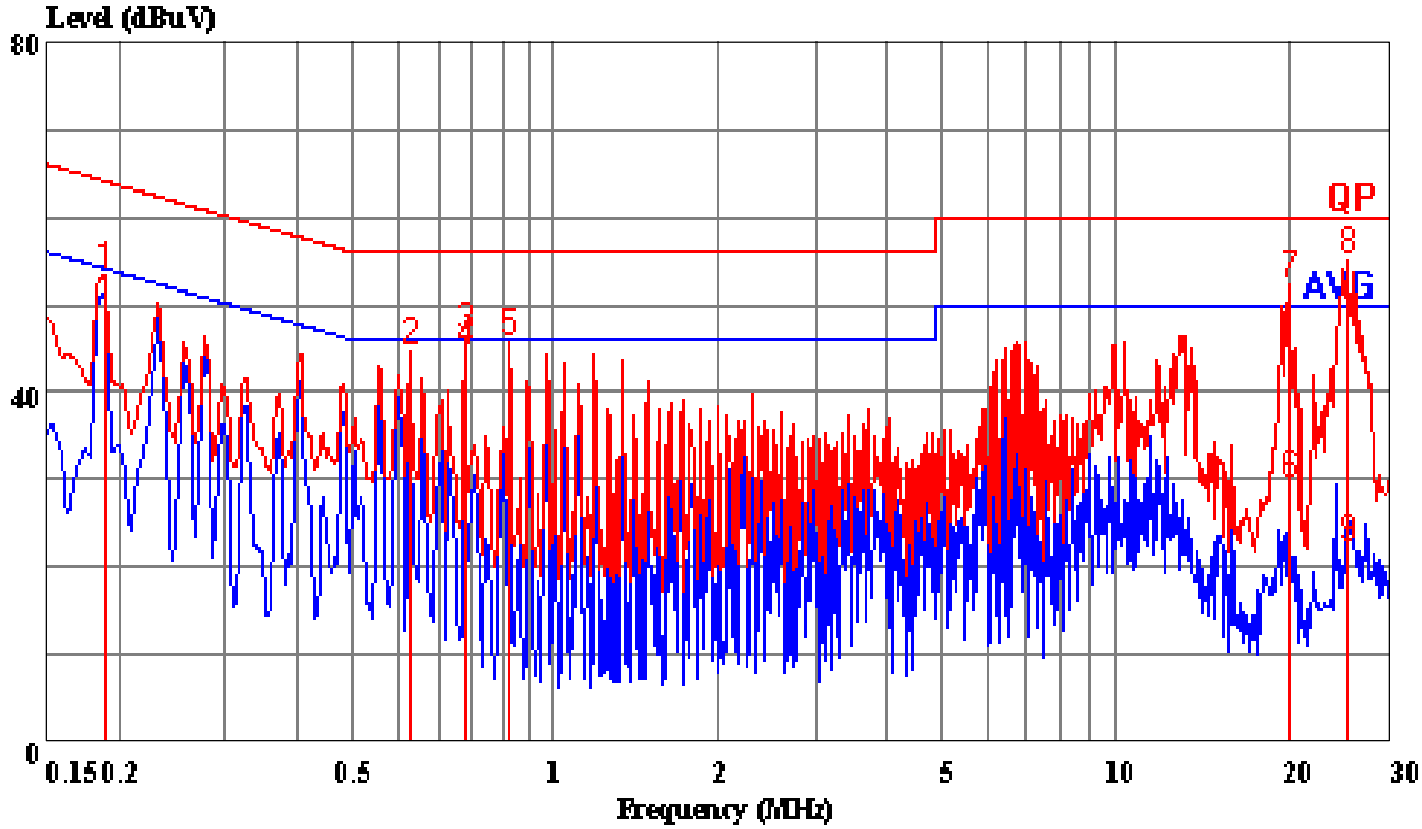
Taiwan, R.O.C.
Tel:02-2217-0894  Fax:02-2217-1254

Data#: 76  File#: 9672e.EMI  Date: 2001-08-07  Time: 07:45:09




(CES Conducted)

Trace: 15  16  Ref Trace:

Condition: LINE
Report No.  : 01E9672
Test Engr.  : JAMES LIAO
Company     : AAEON TECHNOLOGY INC.
EUT         : PCM-6898(N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: FCC CLASS B W/ EN 55022 CLASS B LIMIT
Mode of Op. : Normal Mode



| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | |
| 1 | 0.188 | 53.22 | 0.02 | 53.24 | 64.11 | -10.87 | Peak |
| 2 | 0.627 | 44.47 | 0.06 | 44.53 | 56.00 | -11.47 | Peak |
| 3 | 0.775 | 46.21 | 0.07 | 46.28 | 56.00 | -9.72 | Peak |
| 4 | 0.775 | 44.57 | 0.07 | 44.64 | 46.00 | -1.36 | Average |
| 5 | 0.928 | 45.75 | 0.08 | 45.83 | 56.00 | -10.17 | Peak |
| 6 | 20.056 | 29.09 | 0.44 | 29.53 | 50.00 | -20.47 | Average |
| 7 | 20.056 | 51.94 | 0.44 | 52.38 | 60.00 | -7.62 | Peak |
| 8 | 25.188 | 54.67 | 0.50 | 55.17 | 60.00 | -4.83 | Peak |
| 9 | 25.188 | 21.77 | 0.50 | 22.27 | 50.00 | -27.73 | Average |

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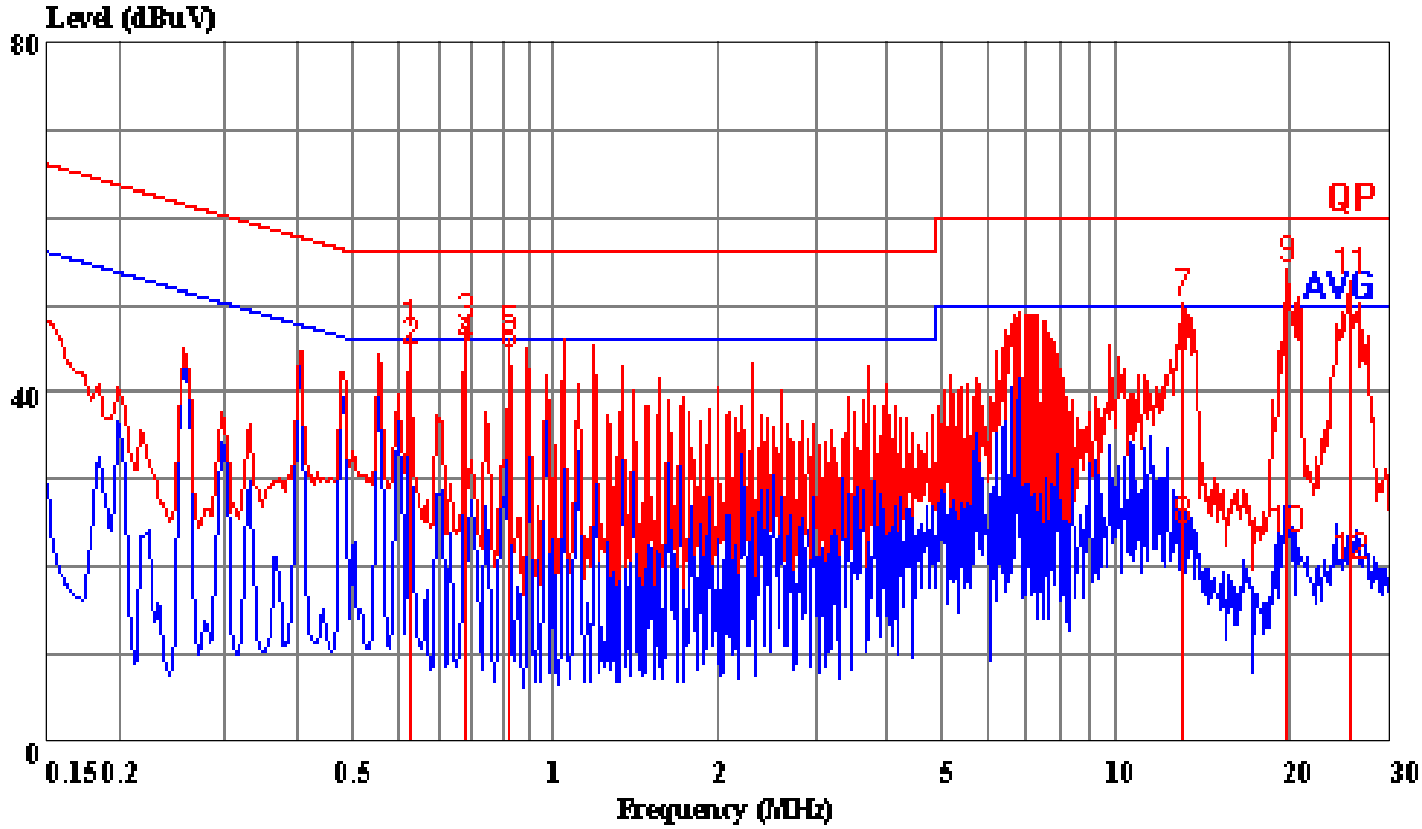
Tel:02-2217-0894  Fax:02-2217-1254

Data#: 79  File#: 9672e.EMI  Date: 2001-08-07  Time: 07:38:40




(CES Conducted)

Trace: 7  8  Ref Trace:

Condition: NEUTRAL
Report No.  : 01E9672
Test Engr.  : JAMES LIAO
Company  : AAEON TECHNOLOGY INC.
EUT  : PCM-6898(N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: FCC CLASS B W/ EN 55022 CLASS B LIMIT
Mode of Op. : Normal Mode

Page: 1

| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | |
| 1 | 0.627 | 46.53 | 0.06 | 46.59 | 56.00 | -9.41 | Peak |
| 2 | 0.627 | 44.68 | 0.06 | 44.74 | 46.00 | -1.26 | Average |
| 3 | 0.775 | 47.43 | 0.07 | 47.50 | 56.00 | -8.50 | Peak |
| 4 | 0.775 | 45.00 | 0.07 | 45.07 | 46.00 | -0.93 | Average |
| 5 | 0.928 | 45.97 | 0.08 | 46.05 | 56.00 | -9.95 | Peak |
| 6 | 0.928 | 44.25 | 0.08 | 44.33 | 46.00 | -1.67 | Average |
| 7 | 13.127 | 49.85 | 0.38 | 50.23 | 60.00 | -9.77 | Peak |
| 8 | 13.127 | 23.91 | 0.38 | 24.29 | 50.00 | -25.71 | Average |
| 9 | 19.950 | 53.52 | 0.44 | 53.96 | 60.00 | -6.04 | Peak |
| 10 | 19.950 | 22.76 | 0.44 | 23.20 | 50.00 | -26.80 | Average |
| 11 | 25.456 | 52.19 | 0.50 | 52.69 | 60.00 | -7.31 | Peak |
| 12 | 25.456 | 19.42 | 0.50 | 19.92 | 50.00 | -30.08 | Average |

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Tel:02-2217-0894  Fax:02-2217-1254

Data#: 9  File#: 9462d.EMI  Date: 2001-08-06  Time: 10:10:49
CCS D-Site

Condition: VERTICAL
Report No.  : 01E9672
Test Engr.  : JAMES LIAO
Company  : AAEON TECHNOLOGY INC.
EUT  : PCM-6898(N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: FCC CLASS B W/ EN 55022 CLASS B LIMIT
Mode of Op. : NORMAL MODE



| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | |
| 1 | 133.256 | 29.78 | -8.27 | 21.51 | 30.00 | -8.49 | Peak |
| 2 | 184.283 | 31.25 | -8.93 | 22.32 | 30.00 | -7.68 | Peak |
| 3 | 199.994 | 35.72 | -10.01 | 25.72 | 30.00 | -4.29 | Peak |
| 4 | 366.428 | 29.83 | -3.64 | 26.19 | 37.00 | -10.81 | Peak |
| 5 | 399.978 | 31.50 | -2.86 | 28.64 | 37.00 | -8.36 | Peak |
| 6 | 497.422 | 31.20 | -1.03 | 30.17 | 37.00 | -6.83 | Peak |
| 7 | 533.445 | 32.47 | -0.36 | 32.11 | 37.00 | -4.89 | Peak |
| 8 | 663.117 | 29.12 | 2.26 | 31.38 | 37.00 | -5.62 | Peak |
| 9 | 797.006 | 27.41 | 5.04 | 32.45 | 37.00 | -4.55 | Peak |
| 10 | 930.161 | 24.04 | 7.38 | 31.42 | 37.00 | -5.58 | Peak |

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Tel:02-2217-0894  Fax:02-2217-1254

Data#: 10  File#: 9462d.EMI  Date: 2001-08-06  Time: 10:25:45
CCS D-Site

Condition: HORIZONTAL
Report No.  : 01E9672
Test Engr.  : JAMES LIAO
Company     : AAEON TECHNOLOGY INC.
EUT         : PCM-6898(N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: FCC CLASS B W/ EN 55022 CLASS B LIMIT
Mode of Op. : NORMAL MODE



| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | |
| 1 | 133.250 | 29.50 | -8.27 | 21.23 | 30.00 | -8.77 | Peak |
| 2 | 184.317 | 30.84 | -8.93 | 21.91 | 30.00 | -8.09 | Peak |
| 3 | 199.828 | 35.21 | -10.01 | 25.21 | 30.00 | -4.80 | Peak |
| 4 | 366.200 | 24.55 | -3.64 | 20.91 | 37.00 | -16.09 | Peak |
| 5 | 399.967 | 31.73 | -2.86 | 28.87 | 37.00 | -8.13 | Peak |
| 6 | 499.972 | 32.39 | -1.01 | 31.38 | 37.00 | -5.62 | Peak |
| 7 | 533.261 | 27.52 | -0.38 | 27.14 | 37.00 | -9.86 | Peak |
| 8 | 663.561 | 29.52 | 2.27 | 31.79 | 37.00 | -5.21 | Peak |
| 9 | 797.189 | 26.55 | 5.04 | 31.59 | 37.00 | -5.41 | Peak |
| 10 | 930.356 | 26.60 | 7.38 | 33.98 | 37.00 | -3.02 | Peak |

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Tel:02-2217-0894  Fax:02-2217-1254

Data#: 2  File#: 9672d.EMI  Date: 2001-08-22  Time: 08:20:52
CCS D-Site

Condition: HORIZONTAL / 10m
Report No.  : 01E9672
Test Engr.  : JAMES LIAO
Company  : AAEON TECHNOLOGY INC.
EUT  : PCM-6898(N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: FCC CLASS B W/ EN 55022 CLASS B LIMIT
Mode of Op. : Open Chassis W/ Limit+6dB



| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | |
| 1 | 132.694 | 35.92 | -8.36 | 27.56 | 36.00 | -8.44 | Peak |
| 2 | 199.983 | 38.79 | -10.01 | 28.79 | 36.00 | -7.22 | Peak |
| 3 | 399.889 | 36.45 | -2.86 | 33.59 | 43.00 | -9.41 | Peak |
| 4 | 533.422 | 29.62 | -0.38 | 29.24 | 43.00 | -13.76 | Peak |
| 5 | 666.183 | 32.87 | 2.30 | 35.17 | 43.00 | -7.83 | Peak |
| 6 | 796.033 | 27.80 | 5.02 | 32.82 | 43.00 | -10.18 | Peak |
| 7 | 929.072 | 25.79 | 7.33 | 33.12 | 43.00 | -9.88 | Peak |

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Tel:02-2217-0894  Fax:02-2217-1254

Data#: 1  File#: 9672d.EMI  Date: 2001-08-22  Time: 08:16:17
CCS D-Site

Condition: VERTICAL / 10m
Report No.  : 01E9672
Test Engr.  : JAMES LIAO
Company  : AAEON TECHNOLOGY INC.
EUT  : PCM-6898(N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: FCC CLASS B W/ EN 55022 CLASS B LIMIT
Mode of Op. : Open Chassis W/ Limit+6dB



| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | |
| 1 | 132.706 | 39.27 | -8.36 | 30.91 | 36.00 | -5.09 | Peak |
| 2 | 199.950 | 42.93 | -10.01 | 32.93 | 36.00 | -3.08 | Peak |
| 3 | 400.067 | 38.66 | -2.86 | 35.80 | 43.00 | -7.20 | Peak |
| 4 | 532.933 | 32.87 | -0.38 | 32.49 | 43.00 | -10.51 | Peak |
| 5 | 663.039 | 33.13 | 2.26 | 35.39 | 43.00 | -7.61 | Peak |
| 6 | 796.917 | 30.34 | 5.04 | 35.38 | 43.00 | -7.62 | Peak |
| 7 | 929.928 | 28.48 | 7.35 | 35.83 | 43.00 | -7.17 | Peak |

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Tel:02-2217-0894  Fax:02-2217-1254

Data#: 18  File#: 9672f.EMI  Date: 2001-08-22  Time: 10:40:20
CES Chamber

Condition: HORIZONTAL / 3m
Report No.  : 01E9672
Test Engr.  : VINCE CHIANG
Company     : AAEON TECHNOLOGY INC.
EUT         : PCM-6898(N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: FCC CLASS B
Mode of Op. : Open Chassis/1-5GHz



| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | |
| 1 | 1035.645 | 51.60 | -10.72 | 40.89 | 74.00 | -33.11 | Peak |
| 2 | 1035.663 | 49.08 | -10.72 | 38.37 | 54.00 | -15.63 | Average |
| 3 | 1069.093 | 42.08 | -10.56 | 31.52 | 54.00 | -22.48 | Average |
| 4 | 1069.135 | 52.41 | -10.56 | 41.85 | 74.00 | -32.15 | Peak |
| 5 | 1088.250 | 50.51 | -10.48 | 40.03 | 74.00 | -33.97 | Peak |
| 6 | 1088.250 | 48.54 | -10.48 | 38.06 | 54.00 | -15.94 | Average |
| 7 | 1102.475 | 53.50 | -10.43 | 43.07 | 74.00 | -30.93 | Peak |
| 8 | 1102.475 | 51.04 | -10.43 | 40.61 | 54.00 | -13.39 | Average |
| 9 | 1503.475 | 50.18 | -8.73 | 41.45 | 74.00 | -32.55 | Peak |
| 10 | 1503.475 | 48.34 | -8.73 | 39.61 | 54.00 | -14.39 | Average |
| 11 | 1603.725 | 52.04 | -8.23 | 43.81 | 74.00 | -30.19 | Peak |
| 12 | 1603.725 | 50.80 | -8.23 | 42.57 | 54.00 | -11.43 | Average |

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Tel:02-2217-0894  Fax:02-2217-1254

Data#: 16  File#: 9672f.EMI  Date: 2001-08-22  Time: 11:17:04
CES Chamber

Condition: VERTICAL / 3m
Report No.  : 01E9672
Test Engr.  : VINCE CHIANG
Company     : AAEON TECHNOLOGY INC.
EUT         : PCM-6898(N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: FCC CLASS B
Mode of Op. : Open Chassis/1-5GHz



| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | |
| 1 | 1102.475 | 57.95 | -10.43 | 47.52 | 74.00 | -26.48 | Peak |
| 2 | 1102.475 | 57.29 | -10.43 | 46.86 | 54.00 | -7.14 | Average |
| 3 | 1302.838 | 54.12 | -9.58 | 44.53 | 74.00 | -29.47 | Peak |
| 4 | 1303.165 | 53.56 | -9.58 | 43.97 | 54.00 | -10.03 | Average |
| 5 | 1389.488 | 50.27 | -9.20 | 41.06 | 74.00 | -32.94 | Peak |
| 6 | 1389.488 | 49.13 | -9.20 | 39.92 | 54.00 | -14.08 | Average |
| 7 | 1503.400 | 54.30 | -8.73 | 45.57 | 74.00 | -28.43 | Peak |
| 8 | 1503.400 | 53.92 | -8.73 | 45.19 | 54.00 | -8.81 | Average |
| 9 | 1514.475 | 49.99 | -8.67 | 41.33 | 74.00 | -32.67 | Peak |
| 10 | 1514.475 | 49.09 | -8.67 | 40.43 | 54.00 | -13.57 | Average |
| 11 | 1703.671 | 50.53 | -7.75 | 42.78 | 54.00 | -11.22 | Average |
| 12 | 1703.744 | 54.20 | -7.75 | 46.45 | 74.00 | -27.55 | Peak |