

FCC TEST REPORT

REPORT NO.: RF911009R10A

MODEL NO.: 3CRWE52196

RECEIVED: Nov. 13, 2002

TESTED: Nov. 14 ~ 15, 2002

APPLICANT: ACCTON TECHNOLOGY CORPORATION

ADDRESS: No. 1, Creation Rd., III, Science-Based
Industrial Park, Hsinchu, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: 47 14th Lin, Chiapau Tsun, Linko, Taipei,
Taiwan, R.O.C.

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0528
ILAC MRA



Lab Code: 200102-0

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1 CERTIFICATION

PRODUCT : OfficeConnect® Wireless Cable/DSL Gateway
BRAND NAME : 3Com
MODEL NO. : 3CRWE52196
APPLICANT : ACCTON TECHNOLOGY CORPORATION
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from Nov. 14, 2002 to Nov. 15, 2002. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified. This report is issued as a supplementary report of RF911009R10. This report shall be used combined together with its original report.

CHECKED BY : Emily Lu , DATE : Nov. 25, 2002
Emily Lu

APPROVED BY : Alan Lane , DATE : Nov. 25, 2002
Dr. Alan Lane, Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: 47 CFR Part 15, Subpart C | | | |
|---|---|--------|---|
| Standard Section | Test Type and Limit | Result | REMARK |
| 15.207 | AC Power Conducted Emission | PASS | Meet the requirement of limit Minimum -9.93dBuV at 0.262MHz |
| 15.247(c) | Radiated Emissions Limit: Table 15.209 | PASS | Meet the requirement of limit Minimum passing margin is -5.00dBuV at 818.00MHz |

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

| | |
|---------------------------|---|
| PRODUCT | OfficeConnect® Wireless Cable/DSL Gateway |
| MODEL NO. | 3CRWE52196 |
| POWER SUPPLY | 12VDC from AC adapter |
| MODULATION TYPE | BPSK, QPSK, CCK |
| RADIO TECHNOLOGY | DSSS |
| TRANSFER RATE | 1/2/5.5/11Mbps |
| FREQUENCY RANGE | 2412MHz ~ 2462MHz |
| NUMBER OF CHANNEL | 11 |
| OUTPUT POWER | 15.14dBm |
| ANTENNA TYPE | Dipole antenna |
| I/O PORTS | RJ45 port |
| ASSOCIATED DEVICES | NA |

NOTE:

1. This report is a supplementary report of the original report (ADT report No.: RF911009R10). Only conducted emission and radiated emission measurements below 1GHz were presented in this test report.
2. This report is prepared for FCC class II permissive change. The difference compared with the original design is one more power adapter was added to this EUT for the test.

| | |
|-----------------------|-----------------|
| BRAND | 3Com |
| MODEL NO. : | P48121000A040G |
| INPUT POWER : | 120VAC 60Hz 21W |
| OUTPUT POWER : | 12VDC 1000mA |

3. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided in this EUT.

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 1 | 2412 MHz | 7 | 2442 MHz |
| 2 | 2417 MHz | 8 | 2447 MHz |
| 3 | 2422 MHz | 9 | 2452 MHz |
| 4 | 2427 MHz | 10 | 2457 MHz |
| 5 | 2432 MHz | 11 | 2462 MHz |
| 6 | 2437 MHz | | |

NOTE:

1. Below 1 GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, worst case one, was chosen for final test.
2. Above 1 GHz, the channel 1, 6, and 11 were tested individually.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is an OfficeConnect® Wireless Cable/DSL Gateway. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC CFR 47 Part 15, Subpart C. (15.247)

ANSI C63.4 : 1992

All tests have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



3.4 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.

| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|-----|--------------------------|--------|------------|--------------------------|------------------|
| 1 | NOTEBOOK | DELL | PP01L | TW-09C748-12800-19O-B220 | FCC DoC APPROVED |
| 2 | NOTEBOOK | DELL | PPX | 99125 | FCC DoC APPROVED |
| 3 | PRINTER | EPSON | LQ-300+ | DCGY017096 | FCC DoC APPROVED |
| 4 | MODEM | ACEEX | 1414 | 980020504 | IFAXDM1414 |
| 5 | FAST ETHERNET PC CARD | D-Link | DFE-680TXD | RE1A044413 | MQ4FE2K5MX |
| 6 | USB 10/100 Fast Ethernet | D-Link | DU-E100 | UR15001597 | FCC DoC APPROVED |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|--|
| 1 | NA |
| 2 | NA |
| 3 | 1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core |
| 4 | 1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core. |
| 5 | NA |
| 6 | NA |

NOTE: All power cords of the above support units are non shielded (1.8m).

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

| FREQUENCY OF EMISSION (MHz) | CONDUCTED LIMIT (dBμV) | |
|-----------------------------|------------------------|----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56 | 56 to 46 |
| 0.5-5 | 56 | 46 |
| 5-30 | 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.

4.1.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED UNTIL |
|--|-----------|--------------|------------------|
| ROHDE & SCHWARZ Test Receiver | ESCS30 | 847793/022 | Mar. 12, 2003 |
| ROHDE & SCHWARZ Artificial Mains Network (for EUT) | ESH2-Z5 | 828075/003 | Jul. 23, 2003 |
| ROHDE & SCHWARZ 200-A Four-line V-Network | ENV4200 | 830326/018 | Oct. 30, 2003 |
| * ROHDE & SCHWARZ 4-wire ISN | ENY41 | 838119/028 | Dec. 02, 2002 |
| * ROHDE & SCHWARZ 2-wire ISN | ENY22 | 837497/018 | Dec. 02, 2002 |
| EMCO-L.I.S.N. (for peripheral) | 3825/2 | 90031627 | Jul. 23, 2003 |
| Software | Cond-V2L | NA | NA |
| RF cable (JYEBAO) | 5D-FB | Cable-C05.01 | Jul. 23, 2003 |
| LYNICS Terminator (For EMCO LISN) | 0900510 | E1-01-305 | Feb. 20, 2003 |
| LYNICS Terminator (For EMCO LISN) | 0900510 | E1-01-306 | Feb. 20, 2003 |
| Shielded Room | Site 5 | ADT-C05 | NA |
| VCCI Site Registration No. | Site 5 | C-1093 | NA |

- NOTE:**
1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. “*”: These equipment are used for conducted telecom port test only (if tested).
 4. The test was performed in ADT Open Site No. 5.



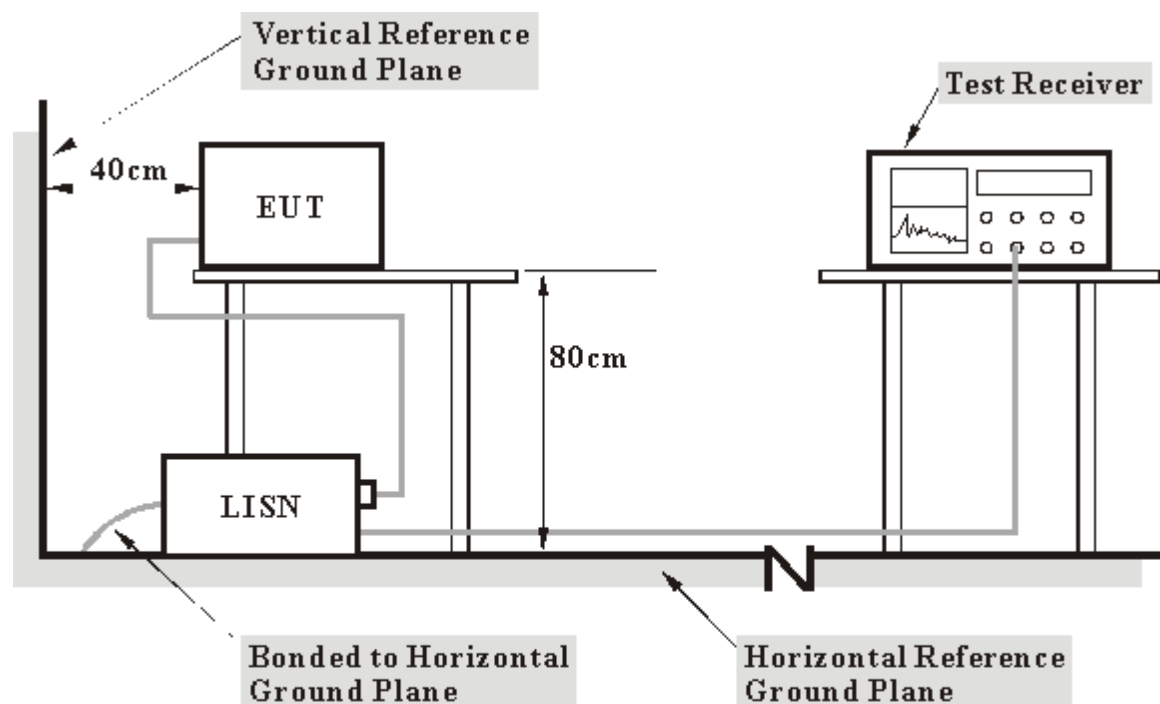
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH 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 could not be reported

4.1.4 DEVIATION FROM TEST STANDARD

No Deviation

4.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

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



4.1.6 EUT OPERATING CONDITIONS

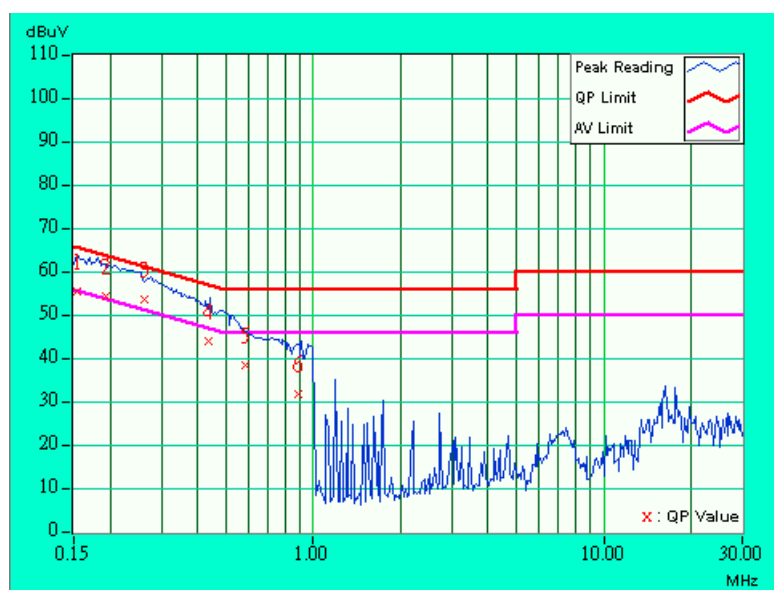
- a. Placed the EUT (with a computer system) on the testing table.
- b. The computer system sent data to EUT by command "PIN" via an RJ 45 cable.
- c. The computer system sent "H" messages to Color Monitor and Monitor displayed "H" patterns on its screen.
- d. The computer system sent "H" messages to modem.
- e. The computer system sent "H" messages to printer, and the printer prints them on paper.
- f. Prepared another computer system to act as a communication partner and placed it outside of testing area.
- g. The communication partner run a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency via an RJ 45 cable.
- h. The communication partner sent data to EUT by command "PIN".

4.1.7 TEST RESULTS

| | | | |
|---------------------------------|--|------------------------------|------------|
| EUT | OfficeConnect Wireless Cable/DSL Gateway | MODEL | 3CRWE52196 |
| MODE | Channel 1 | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | PHASE | Line (L) |
| ENVIRONMENTAL CONDITIONS | 26deg. C, 65%RH, 1005 hPa | TESTED BY: Cody Chang | |

| No | Freq. (MHz) | Corr. Factor (dB) | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|----|-------------|-------------------|-------------------------|-------|--------------------------|-------|-----------------|-------|-------------|--------|
| | | | QP. | AV. | QP. | AV. | QP. | AV. | QP. | AV. |
| 1 | 0.154 | 0.10 | 55.25 | - | 55.35 | - | 65.79 | 55.79 | -10.44 | - |
| 2 | 0.193 | 0.10 | 54.34 | 29.79 | 54.44 | 29.89 | 63.92 | 53.92 | -9.48 | -24.03 |
| 3 | 0.262 | 0.10 | 53.64 | 41.33 | 53.74 | 41.43 | 61.36 | 51.36 | -7.62 | -9.93 |
| 4 | 0.435 | 0.11 | 43.78 | - | 43.89 | - | 57.15 | 47.15 | -13.27 | - |
| 5 | 0.584 | 0.13 | 38.27 | - | 38.40 | - | 56.00 | 46.00 | -17.60 | - |
| 6 | 0.884 | 0.18 | 31.56 | - | 31.74 | - | 56.00 | 46.00 | -24.26 | - |

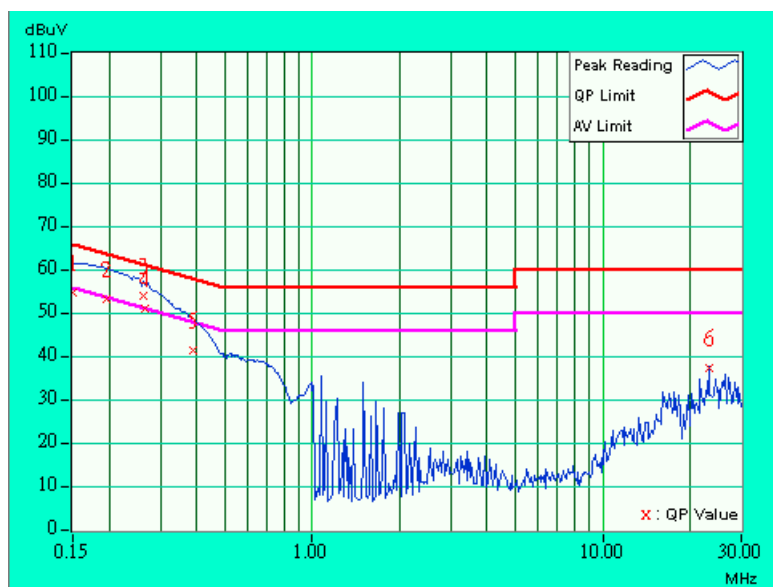
- Remarks:
1. "*": Undetectable
 2. QP. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": NA
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|---|------------------------------|-------------|
| EUT | OfficeConnect® Wireless Cable/DSL Gateway | MODEL | 3CRWE52196 |
| MODE | Channel 1 | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | PHASE | Neutral (N) |
| ENVIRONMENTAL CONDITIONS | 26deg. C, 65%RH, 1005 hPa | TESTED BY: Cody Chang | |

| No | Freq. (MHz) | Corr. Factor (dB) | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|----|-------------|-------------------|-------------------------|-------|--------------------------|-------|-----------------|-------|-------------|--------|
| | | | QP. | AV. | QP. | AV. | QP. | AV. | QP. | AV. |
| 1 | 0.150 | 0.10 | 53.95 | - | 54.05 | - | 66.00 | 56.00 | -11.95 | - |
| 2 | 0.196 | 0.10 | 52.56 | - | 52.66 | - | 63.79 | 53.79 | -11.13 | - |
| 3 | 0.264 | 0.10 | 53.50 | 40.35 | 53.60 | 40.45 | 61.31 | 51.31 | -7.71 | -10.86 |
| 4 | 0.267 | 0.10 | 50.31 | - | 50.41 | - | 61.20 | 51.20 | -10.79 | - |
| 5 | 0.388 | 0.10 | 40.84 | - | 40.94 | - | 58.10 | 48.10 | -17.16 | - |
| 6 | 23.129 | 0.74 | 36.77 | - | 37.51 | - | 60.00 | 50.00 | -22.49 | - |

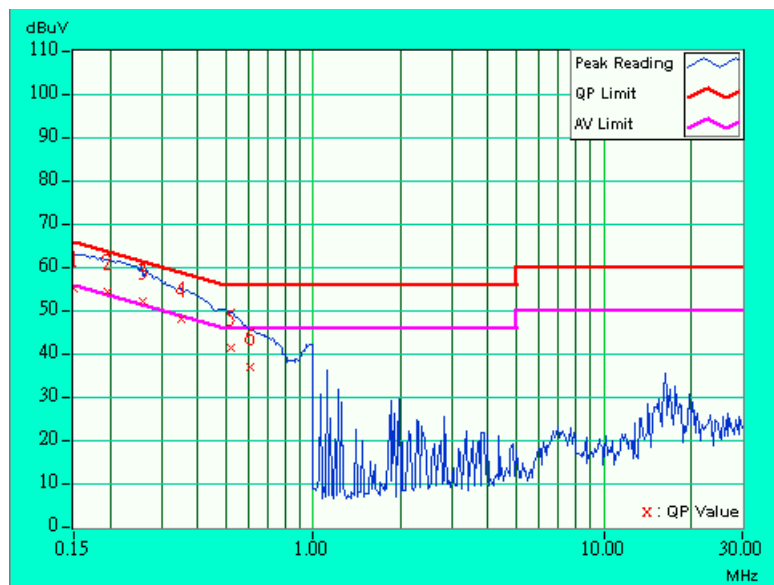
- Remarks:
1. "x": Undetectable
 2. QP. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": NA
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|---|------------------------------|------------|
| EUT | OfficeConnect® Wireless Cable/DSL Gateway | MODEL | 3CRWE52196 |
| MODE | Channel 6 | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | PHASE | Line (L) |
| ENVIRONMENTAL CONDITIONS | 26deg. C, 65%RH, 1005 hPa | TESTED BY: Cody Chang | |

| No | Freq. (MHz) | Corr. Factor (dB) | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|----|-------------|-------------------|-------------------------|-------|--------------------------|-------|-----------------|-------|-------------|--------|
| | | | QP. | AV. | QP. | AV. | QP. | AV. | QP. | AV. |
| 1 | 0.150 | 0.10 | 55.08 | - | 55.18 | - | 66.00 | 56.00 | -10.82 | - |
| 2 | 0.195 | 0.10 | 54.20 | 29.01 | 54.30 | 29.11 | 63.83 | 53.83 | -9.53 | -24.72 |
| 3 | 0.260 | 0.10 | 52.25 | 39.50 | 52.35 | 39.60 | 61.43 | 51.43 | -9.08 | -11.83 |
| 4 | 0.349 | 0.10 | 47.85 | - | 47.95 | - | 58.98 | 48.98 | -11.03 | - |
| 5 | 0.521 | 0.12 | 41.17 | - | 41.29 | - | 56.00 | 46.00 | -14.71 | - |
| 6 | 0.607 | 0.13 | 37.04 | - | 37.17 | - | 56.00 | 46.00 | -18.83 | - |

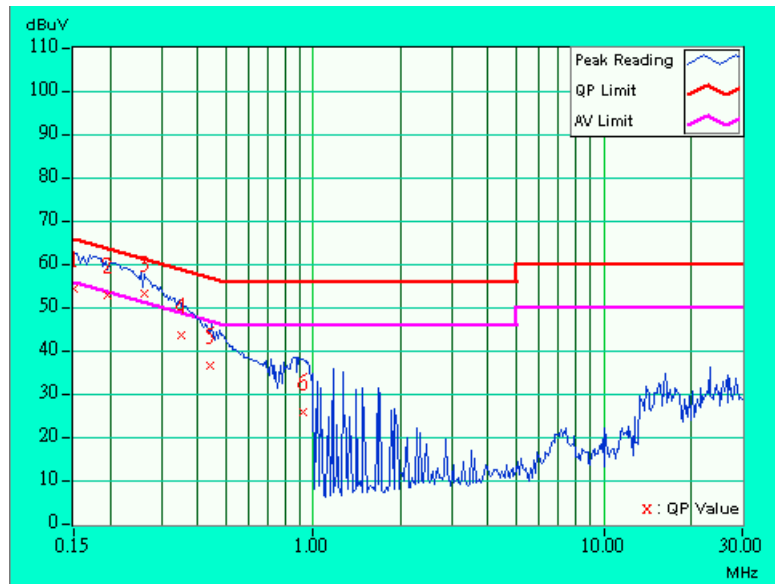
- Remarks:
1. "x": Undetectable
 2. QP. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": NA
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|---|------------------------------|-------------|
| EUT | OfficeConnect® Wireless Cable/DSL Gateway | MODEL | 3CRWE52196 |
| MODE | Channel 6 | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | PHASE | Neutral (N) |
| ENVIRONMENTAL CONDITIONS | 26deg. C, 65%RH, 1005 hPa | TESTED BY: Cody Chang | |

| No | Freq. (MHz) | Corr. Factor (dB) | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|----|-------------|-------------------|-------------------------|-------|--------------------------|-------|-----------------|-------|-------------|--------|
| | | | QP. | AV. | QP. | AV. | QP. | AV. | QP. | AV. |
| 1 | 0.150 | 0.10 | 54.34 | - | 54.44 | - | 66.00 | 56.00 | -11.56 | - |
| 2 | 0.197 | 0.10 | 52.76 | - | 52.86 | - | 63.74 | 53.74 | -10.88 | - |
| 3 | 0.263 | 0.10 | 53.30 | 40.44 | 53.40 | 40.54 | 61.33 | 51.33 | -7.93 | -10.79 |
| 4 | 0.349 | 0.10 | 43.52 | - | 43.62 | - | 58.98 | 48.98 | -15.36 | - |
| 5 | 0.443 | 0.11 | 36.47 | - | 36.58 | - | 57.01 | 47.01 | -20.43 | - |
| 6 | 0.923 | 0.19 | 25.86 | - | 26.05 | - | 56.00 | 46.00 | -29.95 | - |

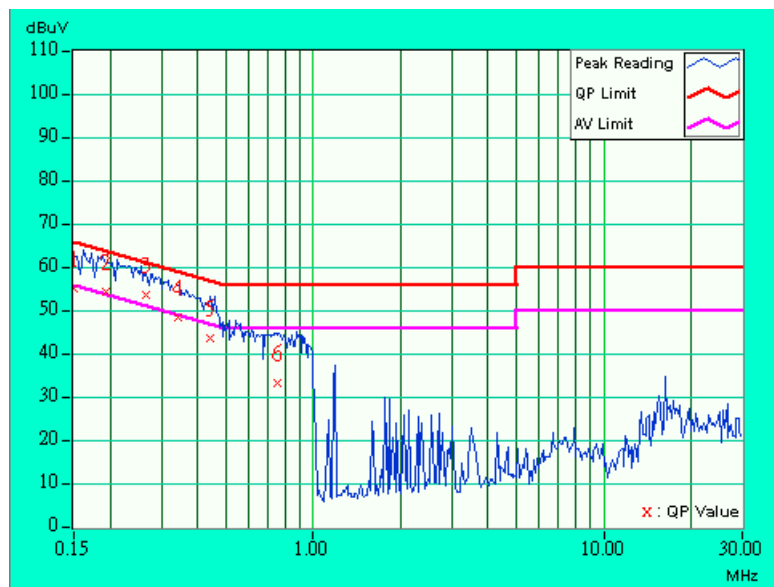
- Remarks:
1. "x": Undetectable
 2. QP. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": NA
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|---|------------------------------|------------|
| EUT | OfficeConnect® Wireless Cable/DSL Gateway | MODEL | 3CRWE52196 |
| MODE | Channel 11 | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | PHASE | Line (L) |
| ENVIRONMENTAL CONDITIONS | 26deg. C, 65%RH, 1005 hPa | TESTED BY: Cody Chang | |

| No | Freq. (MHz) | Corr. Factor (dB) | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|----|-------------|-------------------|-------------------------|-------|--------------------------|-------|-----------------|-------|-------------|--------|
| | | | QP. | AV. | QP. | AV. | QP. | AV. | QP. | AV. |
| 1 | 0.150 | 0.10 | 55.18 | - | 55.28 | - | 66.00 | 56.00 | -10.72 | - |
| 2 | 0.193 | 0.10 | 54.28 | 29.33 | 54.38 | 29.43 | 63.91 | 53.91 | -9.53 | -24.48 |
| 3 | 0.264 | 0.10 | 53.48 | 40.61 | 53.58 | 40.71 | 61.29 | 51.29 | -7.71 | -10.58 |
| 4 | 0.341 | 0.10 | 48.21 | - | 48.31 | - | 59.17 | 49.17 | -10.86 | - |
| 5 | 0.439 | 0.11 | 43.71 | - | 43.82 | - | 57.08 | 47.08 | -13.26 | - |
| 6 | 0.752 | 0.16 | 33.00 | - | 33.16 | - | 56.00 | 46.00 | -22.84 | - |

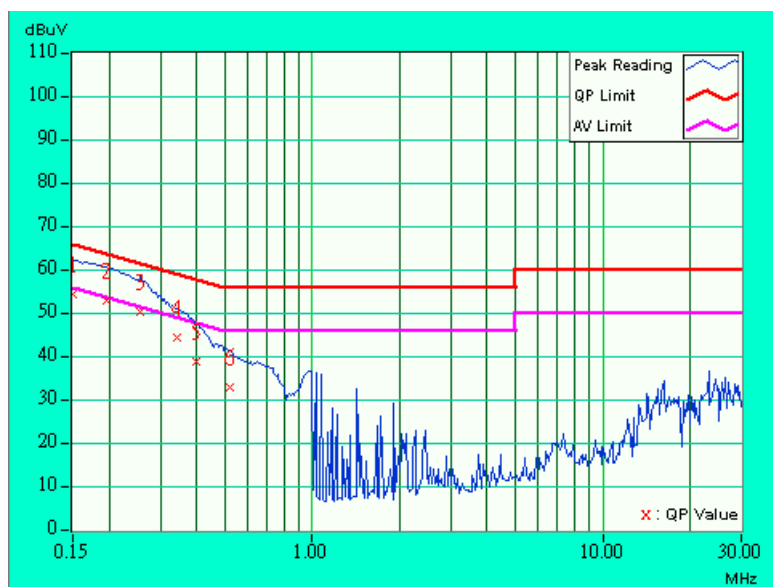
- Remarks:
1. "x": Undetectable
 2. QP. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": NA
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---------------------------------|---|------------------------------|-------------|
| EUT | OfficeConnect® Wireless Cable/DSL Gateway | MODEL | 3CRWE52196 |
| MODE | Channel 11 | 6dB BANDWIDTH | 9 kHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | PHASE | Neutral (N) |
| ENVIRONMENTAL CONDITIONS | 26deg. C, 65%RH, 1005 hPa | TESTED BY: Cody Chang | |

| No | Freq. | Corr. Factor | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|----|-------|--------------|-------------------------|-----|--------------------------|-----|-----------------|-------|-------------|-----|
| | [MHz] | (dB) | QP. | AV. | QP. | AV. | QP. | AV. | QP. | AV. |
| 1 | 0.150 | 0.10 | 54.34 | - | 54.44 | - | 66.00 | 56.00 | -11.56 | - |
| 2 | 0.197 | 0.10 | 52.78 | - | 52.88 | - | 63.74 | 53.74 | -10.86 | - |
| 3 | 0.255 | 0.10 | 50.17 | - | 50.27 | - | 61.58 | 51.58 | -11.31 | - |
| 4 | 0.341 | 0.10 | 44.18 | - | 44.28 | - | 59.18 | 49.18 | -14.90 | - |
| 5 | 0.400 | 0.10 | 38.83 | - | 38.93 | - | 57.85 | 47.85 | -18.92 | - |
| 6 | 0.523 | 0.12 | 32.84 | - | 32.96 | - | 56.00 | 46.00 | -23.04 | - |

- Remarks:
1. "x": Undetectable
 2. QP. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": NA
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

| Frequencies (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED UNTIL |
|------------------------------------|----------------------|--------------------------|------------------|
| * HP Spectrum Analyzer | 8590L | 3544A01176 | May 13, 2003 |
| * HP Preamplifier | 8447D | 2944A08485 | Apr. 29, 2003 |
| * HP Preamplifier | 8449B | 3008A01201 | Dec. 06, 2002 |
| * HP Preamplifier | 8449B | 3008A01292 | Aug. 07, 2003 |
| * ROHDE & SCHWARZ TEST RECEIVER | ESMI | 839013/007 839379/002 | Jan. 27, 2003 |
| SCHWARZBECK Tunable Dipole Antenna | VHA 9103 UHA 9105 | E101051 E101055 | Nov. 23, 2002 |
| ANTENNA (Large Biconical) | VHBA9123 | 449 | Dec. 10, 2002 |
| * CHASE BILOG Antenna | CBL6112A | 2221 | Aug. 02, 2003 |
| * SCHWARZBECK Horn Antenna | BBHA9120-D1 | D130 | Jul. 03, 2003 |
| * EMCO Horn Antenna | 3115 | 9312-4192 | Apr. 09, 2003 |
| * EMCO Turn Table | 1060 | 1115 | NA |
| * SHOSHIN Tower | AP-4701 | A6Y005 | NA |
| * Software | AS61D4 | NA | NA |
| * ANRITSU RF Switches | MP59B | M35046 | Jan. 25, 2003 |
| * TIMES RF cable | LMR-600 | CABLE-ST5-01 | Jul. 12, 2003 |
| Open Field Test Site | Site 5 | ADT-R05 | Jul. 19, 2003 |
| VCCI Site Registration No. | Site 5 | R-1039 | NA |

- NOTE:** 1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
3. "*" = These equipment are used for the final measurement.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The test was performed in ADT Open Site No. 5.

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters 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.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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 emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

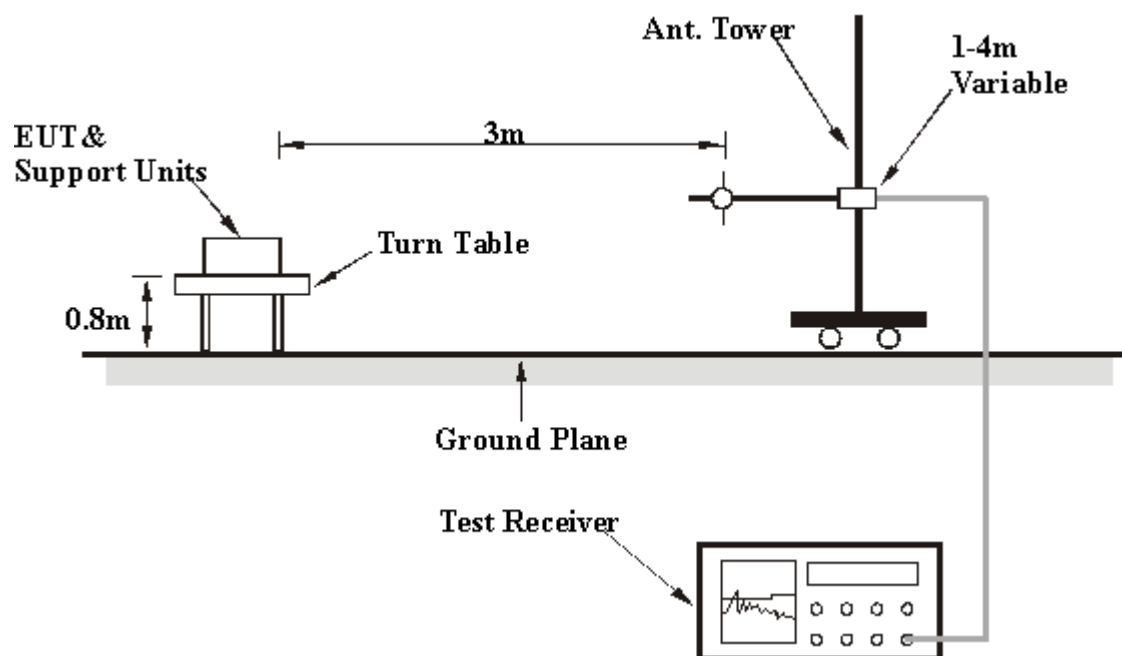
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 300 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

| | | | |
|---------------------------------|---|------------------------------|-------------|
| EUT | OfficeConnect® Wireless Cable/DSL Gateway | MODEL | 3CRWE52196 |
| MODE | Channel 11 | FREQUENCY RANGE | 30-1000 MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | DETECTOR FUNCTION | Quasi-Peak |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 60%RH, 1005 hPa | TESTED BY: Gary Chang | |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Factor (dB) | Correction Factor (dB/m) |
|-----|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|-----------------------|-------------------|----------------------|--------------------------|
| 1 | 125.00 | 28.0 QP | 43.50 | -15.50 | 1.00H | 271 | 13.23 | 11.47 | 3.30 | 0.00 | -14.77 |
| 2 | 210.00 | 29.0 QP | 43.50 | -14.50 | 1.08H | 266 | 15.26 | 9.54 | 4.20 | 0.00 | -13.75 |
| 3 | 250.00 | 33.6 QP | 46.00 | -12.40 | 1.03H | 257 | 16.91 | 12.02 | 4.67 | 0.00 | -16.69 |
| 4 | 375.00 | 34.1 QP | 46.00 | -11.90 | 1.00H | 269 | 13.04 | 15.13 | 5.93 | 0.00 | -21.06 |
| 5 | 500.00 | 36.3 QP | 46.00 | -9.70 | 1.04H | 220 | 12.56 | 17.26 | 6.49 | 0.00 | -23.75 |
| 6 | 600.00 | 32.3 QP | 46.00 | -13.70 | 1.06H | 181 | 5.80 | 18.61 | 7.89 | 0.00 | -26.51 |
| 7 | 625.00 | 35.3 QP | 46.00 | -10.70 | 1.03H | 140 | 8.39 | 18.91 | 8.01 | 0.00 | -26.92 |
| 8 | 675.00 | 32.6 QP | 46.00 | -13.40 | 1.07H | 58 | 5.05 | 19.27 | 8.28 | 0.00 | -27.55 |
| 9 | 724.90 | 32.6 QP | 46.00 | -13.40 | 1.00H | 60 | 4.24 | 19.76 | 8.60 | 0.00 | -28.36 |
| 10 | 748.00 | 35.0 QP | 46.00 | -11.00 | 1.02H | 115 | 6.11 | 20.14 | 8.75 | 0.00 | -28.90 |
| 11 | 750.00 | 35.0 QP | 46.00 | -11.00 | 1.00H | 158 | 6.06 | 20.18 | 8.76 | 0.00 | -28.95 |
| 12 | 812.00 | 38.2 QP | 46.00 | -7.80 | 1.04H | 209 | 8.24 | 20.64 | 9.32 | 0.00 | -29.96 |
| 13 | 818.00 | 41.0 QP | 46.00 | -5.00 | 1.08H | 261 | 11.03 | 20.61 | 9.35 | 0.00 | -29.98 |
| 14 | 825.00 | 38.0 QP | 46.00 | -8.00 | 1.11H | 285 | 8.03 | 20.58 | 9.39 | 0.00 | -29.98 |
| 15 | 875.00 | 31.5 QP | 46.00 | -14.50 | 1.16H | 253 | 1.21 | 20.63 | 9.65 | 0.00 | -30.30 |
| 16 | 887.00 | 37.5 QP | 46.00 | -8.50 | 1.13H | 205 | 7.06 | 20.71 | 9.73 | 0.00 | -30.45 |
| 17 | 900.00 | 36.2 QP | 46.00 | -9.80 | 1.17H | 181 | 5.57 | 20.80 | 9.82 | 0.00 | -30.64 |

- NOTE:**
- 1 Emission level = Raw Value - Correction Factor
 - 2 Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
(External Preamp. Gain = 0, when the test receiver is used for the test.)
 - 3 The other emission levels were very low against the limit.
 - 4 Margin value = Emission level - Limit value

| | | | |
|---------------------------------|---|------------------------------|-------------|
| EUT | OfficeConnect® Wireless Cable/DSL Gateway | MODEL | 3CRWE52196 |
| MODE | Channel 11 | FREQUENCY RANGE | 30-1000 MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | DETECTOR FUNCTION | Quasi-Peak |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 60%RH, 1005 hPa | TESTED BY: Gary Chang | |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | | | | |
|--|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|-----------------------|-------------------|----------------------|--------------------------|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Factor (dB) | Correction Factor (dB/m) |
| 1 | 125.00 | 27.0 QP | 43.50 | -16.50 | 1.15V | 127 | 12.23 | 11.47 | 3.30 | 0.00 | -14.77 |
| 2 | 250.00 | 33.7 QP | 46.00 | -12.30 | 1.11V | 95 | 17.01 | 12.02 | 4.67 | 0.00 | -16.70 |
| 3 | 420.00 | 31.0 QP | 46.00 | -15.00 | 1.24V | 95 | 8.46 | 16.21 | 6.33 | 0.00 | -22.55 |
| 4 | 458.50 | 35.2 QP | 46.00 | -10.80 | 1.06V | 17 | 12.11 | 16.53 | 6.55 | 0.00 | -23.10 |
| 5 | 500.00 | 36.4 QP | 46.00 | -9.60 | 1.04V | 46 | 12.66 | 17.26 | 6.49 | 0.00 | -23.75 |
| 6 | 524.50 | 33.5 QP | 46.00 | -12.50 | 1.10V | 95 | 8.95 | 17.59 | 6.95 | 0.00 | -24.56 |
| 7 | 585.80 | 33.0 QP | 46.00 | -13.00 | 1.13V | 135 | 6.83 | 18.41 | 7.76 | 0.00 | -26.18 |
| 8 | 600.00 | 31.7 QP | 46.00 | -14.30 | 1.14V | 174 | 5.20 | 18.61 | 7.89 | 0.00 | -26.51 |
| 9 | 625.00 | 32.4 QP | 46.00 | -13.60 | 1.11V | 216 | 5.49 | 18.91 | 8.01 | 0.00 | -26.92 |
| 10 | 737.00 | 35.2 QP | 46.00 | -10.80 | 1.20V | 281 | 6.55 | 19.97 | 8.68 | 0.00 | -28.66 |
| 11 | 748.00 | 33.8 QP | 46.00 | -12.20 | 1.19V | 329 | 4.91 | 20.14 | 8.75 | 0.00 | -28.90 |
| 12 | 750.00 | 31.5 QP | 46.00 | -14.50 | 1.30V | 294 | 2.56 | 20.18 | 8.76 | 0.00 | -28.95 |
| 13 | 856.70 | 34.5 QP | 46.00 | -11.50 | 1.34V | 246 | 4.43 | 20.52 | 9.54 | 0.00 | -30.08 |
| 14 | 875.04 | 34.0 QP | 46.00 | -12.00 | 1.29V | 203 | 3.71 | 20.63 | 9.65 | 0.00 | -30.30 |
| 15 | 893.90 | 39.6 QP | 46.00 | -6.40 | 1.26V | 151 | 9.07 | 20.76 | 9.78 | 0.00 | -30.54 |
| 16 | 900.00 | 37.5 QP | 46.00 | -8.50 | 1.21V | 109 | 6.87 | 20.80 | 9.82 | 0.00 | -30.64 |

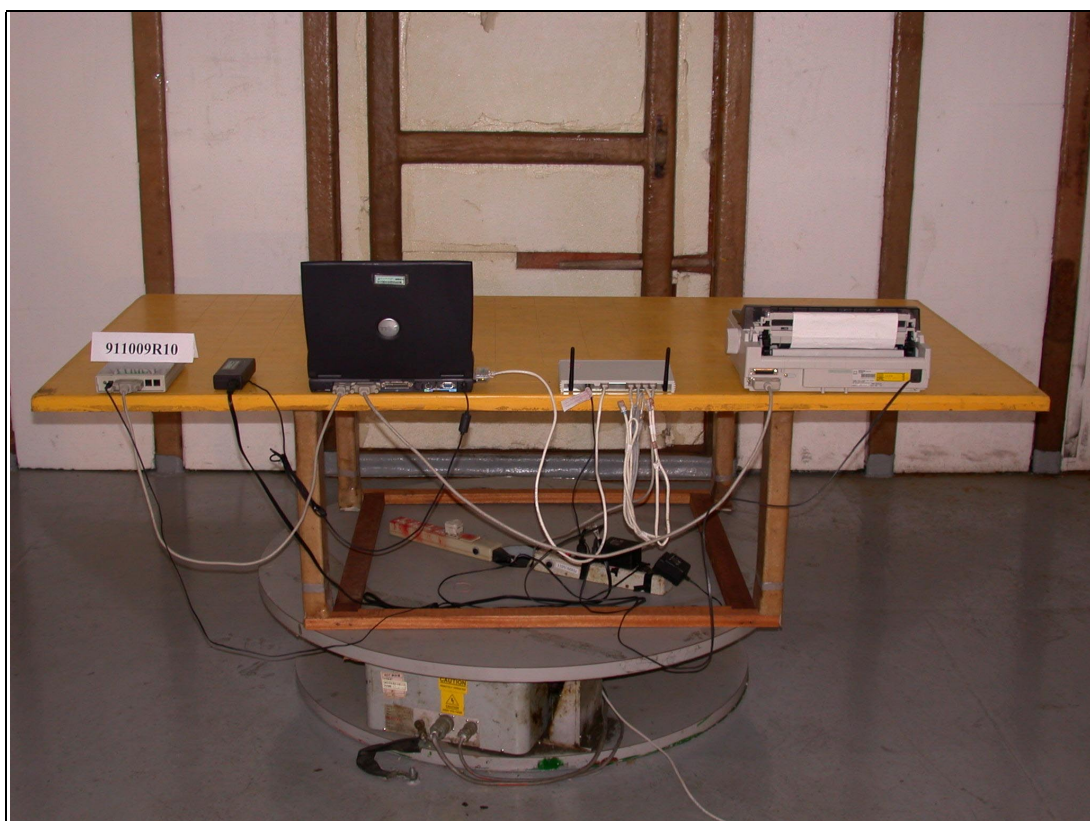
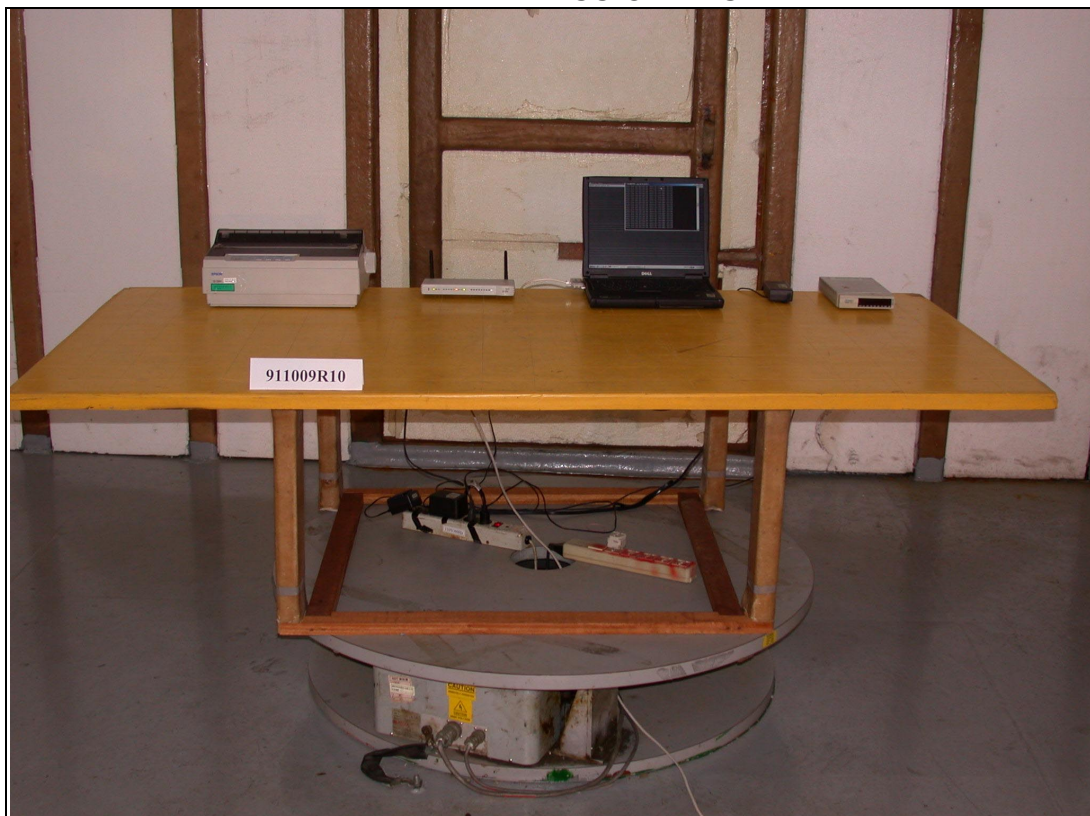
- NOTE:**
- 1 Emission level = Raw Value - Correction Factor
 - 2 Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
(External Preamp. Gain = 0, when the test receiver is used for the test.)
 - 3 The other emission levels were very low against the limit.
 - 4 Margin value = Emission level - Limit value

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST





6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

| | |
|--------------------|-----------------|
| USA | FCC, NVLAP, UL |
| Germany | TUV Rheinland |
| Japan | VCCI |
| New Zealand | MoC |
| Norway | NEMKO |
| R.O.C. | BSMI, DGT, CNLA |

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml.

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Fax: 886-35-935342

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The address and road map of all our labs can be found in our web site also.