



ELECTROMAGNETIC COMPATIBILITY TEST REPORT

Company : YODA COMMUNICATIONS, INC.

Address : 2F, No. 3-1, Industry East Road IX, Hsinchu Science Based
Industrial Park, Taiwan, R.O.C.

Sample Name : VoIP

Model : VG100

Date Received : JUL. 17, 2002

Date Tested : JUL. 25 & AUG. 08, 2002

MEASUREMENT REQUIREMENT USED :

FCC RULES AND REGULATION PART 15 SUBPART B
CLASS B OCTOBER 1998 AND ANSI C63.4 MAY 1992
CISPR 22, CLASS B, 1997

WE HEREBY CERTIFY THAT: The measurements shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable. We assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.

| | Name | Signature | Date |
|-------------------|-----------------|-----------|------|
| Testing Engineer | S. B. Lu/NVLAP | | |
| Approving Manager | C. F. Wu /NVLAP | | |

Notes :

1. This report will be invalid if duplicated or photocopied in part.
2. This report refers only to the specimen(s) submitted to test, and is invalid as separately used.
3. This report is invalid without examination stamp and signature of this institute.
4. The tested specimen(s) will be preserved for thirty days from the data issued.
5. The report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.



| TITLE | PAGE NO. |
|---|----------|
| 1. GENERAL INFORMATION | 3 |
| 1.1 GENERAL STATEMENT | 3 |
| 1.2 DESCRIPTION OF EUT | 3 |
| 1.3 DESCRIPTION OF PERIPHERALS | 4 |
| 1.4 EUT & PERIPHERALS SETUP DIAGRAM | 4 |
| 1.5 EUT OPERATING CONDITION | 5 |
| 1.6 DESCRIPTION OF OPEN SITE | 5 |
| 2. CONDUCTED EMISSION TEST | 6 |
| 2.1 TEST EQUIPMENTS | 6 |
| 2.2 TEST SETUP | 6 |
| 2.3 CONDUCTED POWER LINE EMISSION LIMIT | 7 |
| 2.4 TEST PROCEDURE | 7 |
| 2.5 UNCERTAINTY OF CONDUCTED EMISSION | 7 |
| 2.6 CONDUCTED RF VOLTAGE MEASUREMENT | 8 |
| 2.7 PHOTOS OF CONDUCTION TEST | 9 |
| 3. RADIATED EMISSION TEST | 10 |
| 3.1 TEST EQUIPMENTS | 10 |
| 3.2 TEST SETUP | 10 |
| 3.3 RADIATION LIMIT | 11 |
| 3.4 TEST PROCEDURE | 11 |
| 3.5 UNCERTAINTY OF RADIATED EMISSION | 11 |
| 3.6 RADIATED RF NOISE MEASUREMENT | 12 |
| 3.7 PHOTOS OF OPEN SITE | 13-14 |



1. GENERAL INFORMATION

1.1 GENERAL STATEMENT

MEASUREMENT DEVIATION : Comply with standard in full

TRACEABILITY : This test result is traceable to national or international std.

1.2 DESCRIPTION OF EUT

MANUFACTURER : YODA COMMUNICATIONS, INC.

SAMPLE NAME : VoIP

MODEL NUMBER : VG100

SERIAL NUMBER : Not applicable

POWER SOURCE : 5VDC (From Power Adapter)

POWER CORD : Unshielded cable, 1.8m

POWER ADAPTER

Manufacturer : Sincho International Inc.

Model number : SP41-50350R

Input : 110VAC / 60Hz

Output : 5VDC / 350mA

Engineering Sample , Product Sample , Mass Product Sample.



1.3 DESCRIPTION OF PERIPHERALS

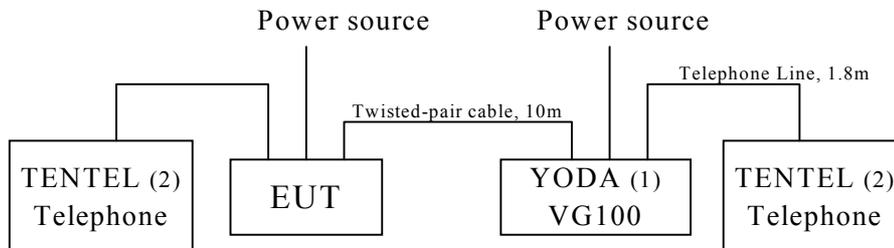
(1) VoIP

MODEL NUMBER : VG100
SERIAL NUMBER : -----
MANUFACTURER : YODA COMMUNICATIONS, INC.
FCC : -----
POWER CORD : Unshielded , Detachable , 1.8m

(2) Telephone

MODEL NUMBER : K-903S
SERIAL NUMBER : 14N0000708
MANUFACTURER : TENDEL CORP
FCC : -----
SIGNAL CABLE : Shielded, Undetachable, 1.8m

1.4 EUT & PERIPHERALS SETUP DIAGRAM





1.5 EUT OPERATING CONDITION

1. Setup whole system for test as shown on setup diagram.
2. Telephone dial "005".
3. Start test until test OK.

1.6 DESCRIPTION OF OPEN SITE

SITE DESCRIPTION : FCC certificate NO. : 31040/PRV
TUV certificate NO. : I9664582-9911
BSMI certificate NO. : SL2-IN-E-0002
NVLAP Lab code : 200118-0
CNLA certificate NO. : CNLA-ZL97018
VCCI certificate NO. : R-1229, C-1250

NAME OF SITE : Electronics Research & Service Organization
Industrial Technology Research Institute

SITE LOCATION : R1500, 195-4 , sec. 4, Chung Hsing Rd.,
Chu-Tung Chen. Hsin-Chu, Taiwan 31015 R.O.C.



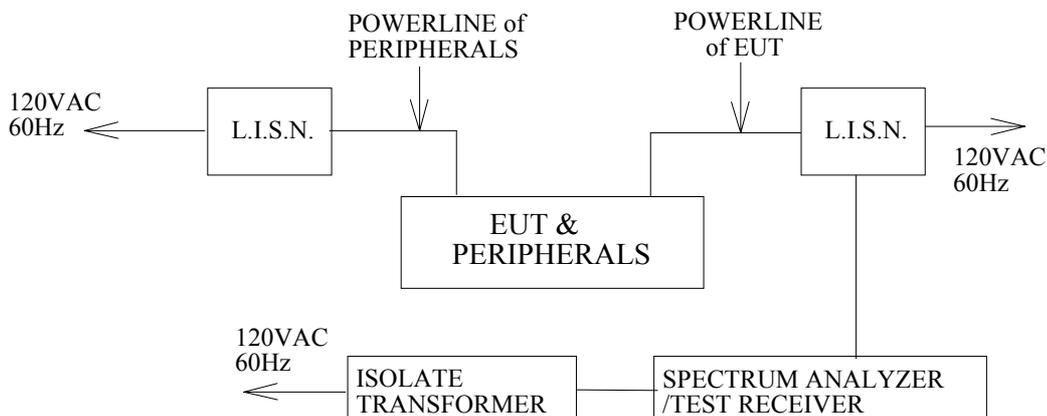
2. CONDUCTED EMISSION TEST

2.1 TEST EQUIPMENTS

The following test equipments are used during the conducted powerline tests :

| MANUFACTURER OR TYPE | MODEL No | SERIAL NO. | DATE OF CALIBRATION | CALIBRATION PERIOD | REMARK |
|-----------------------------|--------------|------------------------|---|--------------------|---------|
| SPECTRUM ANALYZER & DISPLAY | HP 8568A | 2235A02320 | APR. 01, 2002 | 1 Year | PRETEST |
| QUASI-PEAK ADAPTER | HP 85650 A | 2341A00672 | APR. 01, 2002 | 1 Year | PRETEST |
| ISOLATION TRANSFORMER | SOLAR 7032-1 | N/A | N/A | N/A | FINAL |
| L.I.S.N. | EMCO 3850/2 | 9311-1025 9401-1028 | JAN. 08, 2002 For Characteristic impedance MAY 18, 2002 For Insertion loss | 1 Year | FINAL |
| TEST RECEIVER | R/S ESHS 30 | 838550/003 | JAN. 14, 2002 | 1 Year | FINAL |
| SHIELDED ROOM | KEENE 5983 | NO.1 | N/A | N/A | FINAL |
| PULSE LIMIT | R/S EHS3Z2 | 357.8810.52 | JUL. 10, 2002 | 1 Year | FINAL |
| N TYPE COAXIAL CABLE | ----- | ----- | JUL. 10, 2002 | 1 Year | FINAL |
| 50Ω TERMINATOR | ----- | ----- | JUL. 10, 2002 | 1 Year | FINAL |

2.2 TEST SETUP





2.3 CONDUCTED POWER LINE EMISSION LIMIT

| FREQUENCY (MHz) | MAXIMUM RF LINE VOLTAGE (dB μ V) | | | |
|--------------------|--------------------------------------|------|---------|-------|
| | CLASS A | | CLASS B | |
| | Q.P. | Ave. | Q.P. | Ave. |
| 0.15 - 0.50 | 79 | 66 | 66-56 | 56-46 |
| 0.50 - 5.00 | 73 | 60 | 56 | 46 |
| 5.00 - 30.0 | 73 | 60 | 60 | 50 |

2.4 TEST PROCEDURE

The test procedure is performed in a 12ft \times 12ft \times 8ft(L \times W \times H) shielded room. The EUT along with its peripherals were placed on a 1.0m(W) \times 1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

2.5 UNCERTAINTY OF CONDUCTED EMISSION

The uncertainty of conducted emission is ± 1.36 dB.



2.6 CONDUCTED RF VOLTAGE MEASUREMENT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

Temperature : 25 °C

Humidity : 49 % RH

| FREQUENCY (MHz) | READING(dB μ V) | | | | LIMITS (dB μ V) | |
|--------------------|---------------------|------|-----------------------|------|------------------------|-------|
| | ONE END & GRD'D | | THE OTHER END & GRD'D | | Q.P. | Ave. |
| | Q.P. | Ave. | Q.P. | Ave. | | |
| 0.150 | 39.30 | * | 39.80 | * | 66.00 | 56.00 |
| 0.162 | 39.30 | * | * | * | 65.36 | 55.36 |
| 0.170 | * | * | 40.00 | * | 64.94 | 54.94 |
| 0.201 | 40.80 | * | * | * | 63.58 | 53.58 |
| 0.207 | * | * | 41.90 | * | 63.32 | 53.32 |
| 0.221 | * | * | 43.30 | * | 62.79 | 52.79 |
| 0.222 | 43.30 | * | * | * | 62.74 | 52.74 |
| 0.433 | * | * | 35.40 | * | 57.20 | 47.20 |
| 0.435 | 36.10 | * | * | * | 57.15 | 47.15 |
| 0.830 | 26.40 | * | * | * | 56.00 | 46.00 |
| 0.862 | * | * | 26.50 | * | 56.00 | 46.00 |
| 24.576 | 10.20 | * | 19.80 | * | 60.00 | 50.00 |
| 30.000 | * | * | * | * | 60.00 | 50.00 |

REMARKS : 1. * Undetectable or the Q.P.values is lower than the limits of Ave



2.7 PHOTOS OF CONDUCTION TEST





3. RADIATED EMISSION TEST

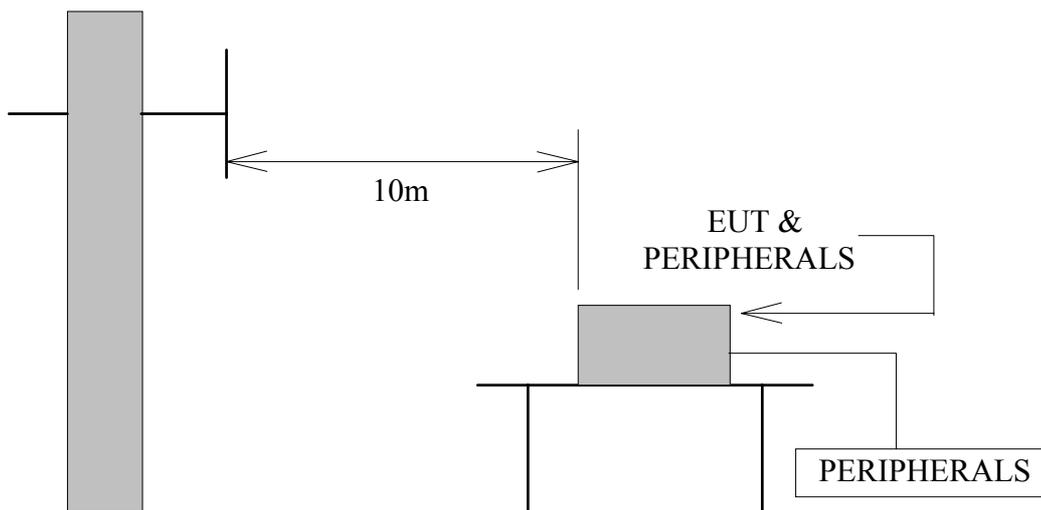
3.1 TEST EQUIPMENTS

The following test equipments are utilized in making the measurements contained in this report.

| MANUFACTURER OR TYPE | MODEL NO | SERIAL NO | DATE OF CALIBRATION | CALIBRATION PERIOD | REMARK |
|----------------------|----------|--------------------------|---------------------|--------------------|--------|
| CHASE BI-LOG ANTENNA | CBL6112B | 2562 | MAY 07, 2002 | 1 Year | FINAL |
| R/S TEST RECEIVER | ESMI | 842088/005 841978/008 | JUL. 18, 2001 | 1 Year | FINAL |
| OPEN SITE | ----- | No.1 | JUL. 10~12, 2002 | 1 Year | FINAL |
| N TYPE COAXIAL CABLE | CHA9525 | 015 | JUL. 13, 2002 | 1 Year | FINAL |

3.2 TEST SETUP

The diagram below shows the test setup which is utilized to make these measurements.



Antenna Elevation Variable



3.3 RADIATION LIMIT

All emanation from a class B computing device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below :

| FREQUENCY (MHz) | DISTANCE (METERS) | FIELD STRENGTHS(dB μ V/M) | |
|--------------------|----------------------|-------------------------------|---------|
| | | CLASS A | CLASS B |
| 30—230 | 10 | 40 | 30 |
| 230—1000 | 10 | 47 | 37 |

- Note : (1)The tighter limit shall apply at the edge between two frequency bands.
(2)Distance refers to the distance in meters between the measuring instrument antenna and the closest point of any part of the device or system.

3.4 TEST PROCEDURE

The devices under test were placed on a rotatable table top 0.8 meter above ground. The table was rotated 360 degrees to determine the position of the highest radiation. EUT is set 10 meters from the interference receiving antenna which is mounted on the top of a variable height mast. The antenna height is varied between one meter and four meters above ground to find the maximum value of the field strength Both horizontal polarization and vertical polarization of the antenna are set to make the measurement. The bandwidth setting on the E.M.I. meter (R/S TEST RECEIVER) is 120 KHz. The levels are quasi peak value readings. The frequency spectrum from 30MHz to 1000MHz was investigated.

3.5 UNCERTAINTY OF RADIATED EMISSION

The uncertainty of radiated emission is ± 2.72 dB.



3.6 RADIATED RF NOISE MEASUREMENT

The frequency spectrum from 30 MHz to 1000 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

All readings are quasi-peak values.

Temperature : 29 °C

Humidity : 68 % RH

| FREQ- UENCY (MHz) | ANTENNA FACTOR (dB) | CABLE LOSS (dB) | METER READING AT10m(dB μ V/M) | | LIMITS (dB μ V/M) | EMISSION LEVEL AT10m(dB μ V/M) | |
|-----------------------------|-------------------------------|---------------------------|--------------------------------------|----------|------------------------------|---------------------------------------|----------|
| | | | HORIZON- TAL | VERTICAL | | HORIZON- TAL | VERTICAL |
| 30.00 | 18.11 | 0.90 | * | * | 30.00 | * | * |
| 131.09 | 11.79 | 2.24 | 2.36 | 8.28 | 30.00 | 16.39 | 22.31 |
| 163.87 | 10.25 | 2.53 | 7.19 | 8.91 | 30.00 | 19.97 | 21.69 |
| 196.68 | 10.05 | 2.60 | 9.30 | 12.30 | 30.00 | 21.95 | 24.95 |
| 229.43 | 12.11 | 2.89 | 7.23 | 9.57 | 30.00 | 22.23 | 24.57 |
| 245.72 | 13.23 | 3.06 | 1.53 | 2.16 | 37.00 | 17.82 | 18.45 |
| 262.19 | 13.75 | 3.15 | 2.34 | 4.44 | 37.00 | 19.24 | 21.34 |
| 1000.00 | 21.34 | 6.40 | * | * | 37.00 | * | * |

REMARKS : 1. *Undetectable

2. Emission level (dB μ V/M) =Antenna Factor (dB) + Cable loss (dB)
+ Meter Reading (dB μ V/M).



3.7 PHOTOS OF OPEN SITE





3.7 PHOTOS OF OPEN SITE

