FCC TEST REPORT

According to

FCC Part 15 Class A

EUT NAME	:	Powerline 200M Wireless AP, Powerline 200M Wireless Router, Powerline 200M Router, Powerline/Cable 200M Wireless AP, Powerline/Cable 200M Wireless Router, Powerline/Cable 200M Router, Cable 200M Wireless AP, Cable 200M Wireless Router, Cable 200M Router, Wireless Router, Broadband Router
MODEL NO.	:	WPL200, NPL200, WPR200, NPR200, PR200, WPL200C, NPL200C, WPR200C, NPR200C, PR200C, WCL200, NCL200, WCR200, NCR200, CR200, WR, NR, BR
APPLICANT	:	ACEEX CORPORATION
		2F, NO. 2, ALLEY 1, SZE-WEI LANE, (ABC FAREAST INDUSTRIAL PARK) CHUNG-CHENG RD., HSINTIEN, TAIPEI 23138, TAIWAN, R. O. C.

REVIEWED BY : NICK LEE

ISSUED DATE: : JULY 29, 2008

- The test result refers exclusively to the test presented test model / sample.
- Without the written authorization of the test lab., the Test Report may not be copied.

PEP TESTING LABORATORY

NO. 9-6, Huzi, Hubei Village, Linkou Shiang, Taipei Hsien, Taiwan 244, R. O. C.
TEL : 886-2-26021042 FAX : 886-2-26021045

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1. General

1.1 General Information:

Applicant :	ACEEX CORPORATION
Address :	2F, NO. 2, ALLEY 1, SZE-WEI LANE, (ABC FAREAST INDUSTRIAL PARK) CHUNG-CHENG RD., HSINTIEN, TAIPEI 23138, TAIWAN, R. O. C.

Manufacturer :	ACEEX CORPORATION
Address :	2F, NO. 2, ALLEY 1, SZE-WEI LANE, (ABC FAREAST INDUSTRIAL PARK) CHUNG-CHENG RD., HSINTIEN, TAIPEI 23138, TAIWAN, R. O. C.

Measurement Uncertainty :
The uncertainty of the testing result is given as below. The method of uncertainty Calculation is provided in PEP Testing Lab document No. QP-T-28-B & QP-T-27-B

Frequency (MHz)	0.15 ~ 30	30 ~ 1000
Expanded Uncertainty μ_c	1.42 (dB)	2.76 (dB)

※ 95% Confidence Level; K=2

1.2 Place of Measurement

※ PEP TESTING LABORATORY ※

NO. 9-6, Huzi, Hubei Village, Linkou Shiang, Taipei Hsien, Taiwan 244, R. O. C.	
E-Mail : peplab@ms32.hinet.net	
TEL : 886-2-26021042	**FAX : 886-2-26021045**
Accreditation ---	
NVLAP LAB CODE 200097-0	**(U. S. A.) (AUSTRALIA)**
FCC Registration No. : 90868	**(U. S. A.)**
NEMKO Aut. No. : ELA133	**(Europe)**
BSMI Aut. No. : SL2-IN-E-11	**(Taiwan)**
VCCI Registration No. : C-493/R-477	**(Japan)**

2. Product Information

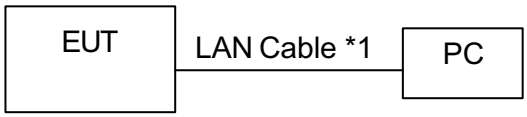
a. EUT Name:	Powerline 200M Wireless AP
b. Model No. :	WPL200
c. CPU Type :	N/A
d. CPU Frequency :	N/A
e. Crystal/Oscillator(s) :	37.5 MHz, 25.080 MHz, 40 MHz, 6.7584 MHz
f. Chassis Used :	ABS
g. Port/Connector(s) :	Lan Cable * 1
h. Power Rating :	AC 120V 60Hz
i. Condition of the EUT :	☐ Prototype Sample ☑ Engineering Sample ☐ Production Sample
j. Test Item Receipt Date :	MAY 08, 2008
k. Date(s) of performance of test:	MAY 08, 2008 – JULY 29, 2008

3. EUT Description/Test Software Used/ Modification(s)

Description about EUT

The EUT is Powerline 200M Wireless Router, model number is WPL200, which main function shall be t a device of wireless router. EUT required AC 120V, 60Hz. For the more details specification about EUT, please refer to the user' s manual.

EUT Configuration



Test Operation Mode and Procedure

According to the major function designed, operation modes of conducted and radiated preliminary test are both Powerline Mode. The detail as follow: Connecting EUT and PC with LAN Cable, then transfer data to remote PC through Powerline mode. After preliminary test, the worst-case test result was recorded and provided in the report.

Test procedure:

1. EUT should conform to I/O connect peripheral specification to link, and set up on the table according to regulation.
2. Turning on the EUT and peripheral power. Then execute EUT' s main function and enable peripheral which is EUT connection.
3. Play DVD Player and through EUT to show Color Bar on LCD TV.
4. Move EUT/ peripheral/ data cable to find the worst emission.
5. Starting to test.

Test Software(s) Used

EMCTEST program that continuously generates a complete line of repeating " H" letter was the software used during test.

Modification(s)

The applicant has been notified and agrees to incorporate the following modification(s) into all production units. Please refer to the attached pages in this report.

1. C11 move to T1 (choke) input.
2. Change 47.2mH choke to T1.
3. R140、R141 add 22 ohm.
4. C59、C61 change 47p caps.

4. Support Equipment Used

Personal Computer (PC4)	**CPU：** Intel Pentium 4 3.06GHz **FCC ID：** Declaration of Conformity(DoC) **Manufacturer：** ACER **Model Number：** Aspire T650 **Power Supply：** Switching **Power Cord：** Non-Shielded, Detachable, 1.8m **Data Cable：** N/A
LCD (LCD1 17")	**FCC ID：** Declaration of Conformity(DoC) **Manufacturer：** SAMSUNG **Model Number：** 740B **Power Supply：** Switch, 12Vdac **Power Cord：** Non-Shielded, Detachable, 1.8m **Data Cable：** **1 >** Shielded , Detachable,1.7m **2 >** Back Shell : Metal
Printer (PRN1)	**FCC ID：** B94C2642X **Manufacturer：** Hewlett-Packard **Model Number：** C2642E **Power Supply：** Linear, 30Vdc O/P **Power Cable：** Non-Shielded , Detachable,1.8m **Data Cable：** **1 >** Shielded , Detachable,1.2m **2 >** Back Shell : Metal
Mouse (MOUS/1 PS/2)	**FCC ID：** DZL211106 **Manufacturer：** LOGITECH **Model Number：** M-S43 **Power Supply：** +5Vdc from PS2 of PC **Power Cord：** N/A **Data Cable：** **1 >** Shielded , Non-detachable,1.8m **2 >** Back Shell : Metal
Modem (MOD1)	**FCC ID：** IFAXDM1414 **Manufacturer：** ACEEX **Model Number：** 1414 **Power Supply：** Linear, 9Vac O/P **Power Cable：** Non-Shielded , Detachable,1.7m **Data Cable：** **1 >** Shielded , Detachable,1m **2 >** Back Shell : Metal

Keyboard (KBS1 PS/2)	**FCC ID**：E5XKB5121WTH0110 **Manufacturer**：BTC **Model Number**：5121W **Power Supply**：+5Vdc from PS2 of PC **Power Cord**：N/A **Data Cable**：**1 >** Shielded，Non-detachable,1.6m **2 >** Back Shell : Metal

5. Conducted Disturbance Test Result and Data

Basic Standard	Model No.	Test Result	Remark
EN 55022	WPL200	PASS	

For this EUT (Power Line Adaptor), we adopt CISPR/I/44/CD (committee Draft) issued on 2002-07-12 to perform the conducted disturbance test . Two testing modes are :

(A) EUT standby mode: EUT mains port connected to AMN (V-network), the test result and configuration shown as Section 6.1.

(B) EUT data transmission mode: EUT mains port connected to T-ISN which provided by our client (ACEEX CORPORATION) , the test result , configuration and more detail information about T-ISN used shown as Section 6.2.

5.1 Conducted Emission Test Limits at Main Ports With the AMN.

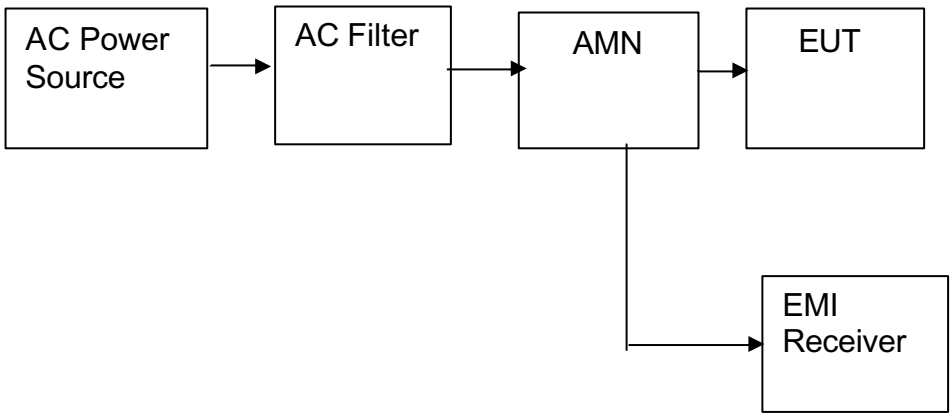
Test Mode : Standby mode: no data transmitted which is applicable for limits of 5.1

Frequency Range	Limits dB(uV)	
	Class A	
MHz	QUASI- PEAK	Average
0.15 – 0.5	79	66
0.5 – 5.0	73	60
5.0-30	73	60

Remarks: - If the average limit is met when a quasi-peak detector is used, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

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

5.1a Test Setup (AMN)

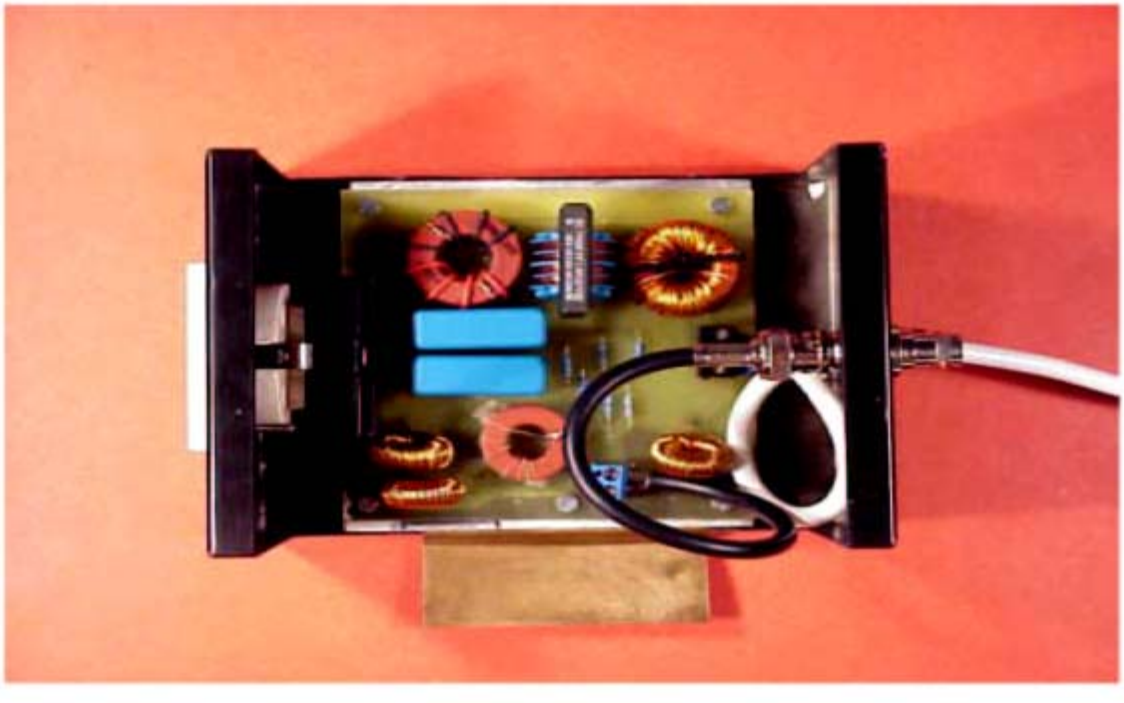


5.2 Conducted Emission Test Limit at Main Ports With the T-ISN

Test Mode : Data transmission mode: data transmitted which is applicable for limits of 5.2 .

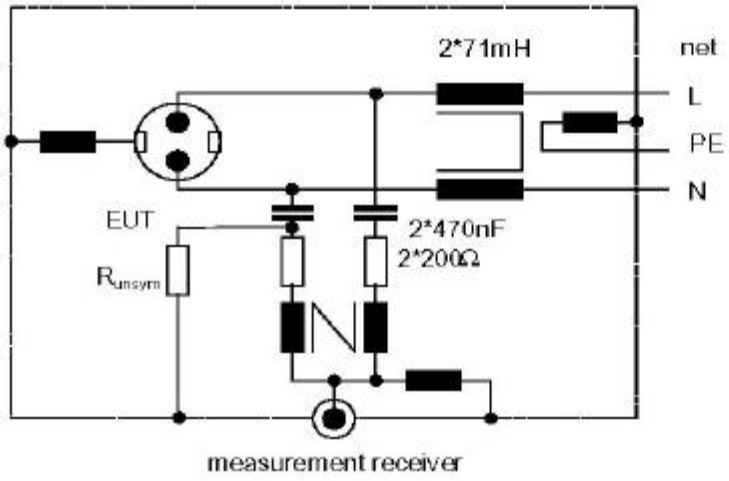
Frequency Range	EN 55022 Class A	
	Quasi-peak	Average
0.15 – 0.5 MHz	97 bis 87	84 bis 74
0.5 – 30 MHz	87	74

The used T-ISN was provided by ACEEX CORPORATION, if any, T-ISN technical question, please check ACEEX CORPORATION.



Measuring methode and set-up for the measurement of the emissions of a PLC-modem
Prof. Hirsch, Uni Dortmund

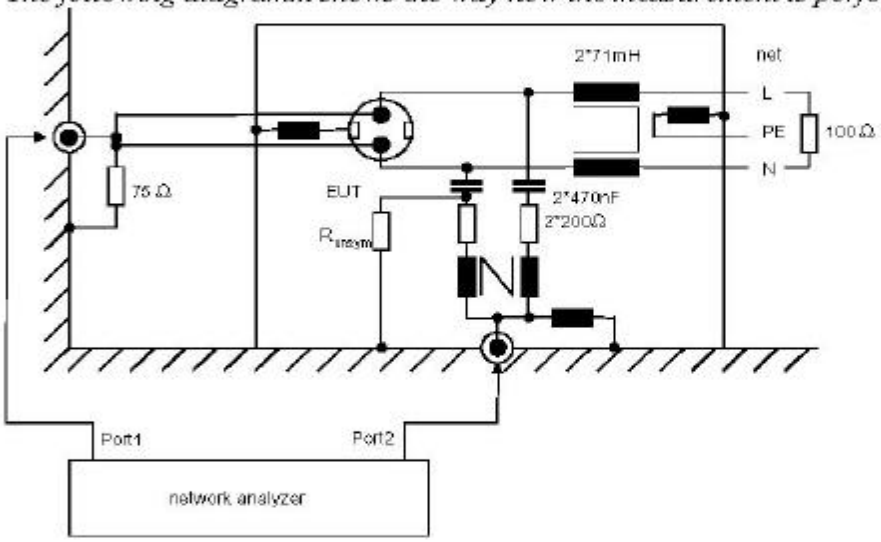
*As main element in the principle circuit diagramm are the decoupling part with 2*470nF, 2*200Ω and the magneticly coupled inductions to see. Together with the 50Ω input impedance a asymetric impedance of 150Ω is reached. However this impedance is decreased by the R_{unsym}. A common mode choke (to optimize the frequency charcteristics some chokes are placed in series) builds the for the high frequency differential mode necessary effective decoupling system between the EUT- and the voltage main port. The resistor R_{unsym} has a dimension for that a LCL value of 30dB is reached. A symmetric termination is solely reached by the connection to the net and the connected consumers. The measurements are performed in a shielded with net filters equiped cabine, so that the net lines do only have a few branch outs of short lenght.*



Calibration and Qualifying

The calibration and qualifying of the T-ISN is done by the measurement of relevant known values. These are „transmission" (transducer factor), asymmetrical impedance and the LCL. As main element for the measurement a network analyzer (here: Rhode & Schwarz ZVRE 1127.8551, SN 100081) is used. Furthermore some common adaptors and a LCL-measurement adaptor are necessary.

a) Transmission for asymmetrical currencies.
The following diagramm shows the way how the measurement is performed:

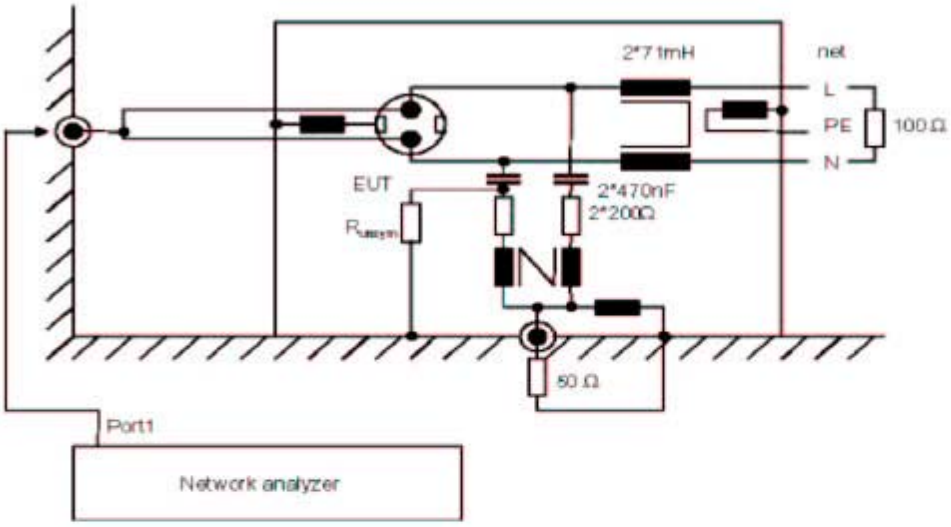


The main device for the measurement is the network analyzer. The manufacturer declares that after calibration the measurement uncertainty is less than 0.2dB. Connectors can be handled with a uncertainty of 0.5dB and the 75Ω resistor with about 1%.

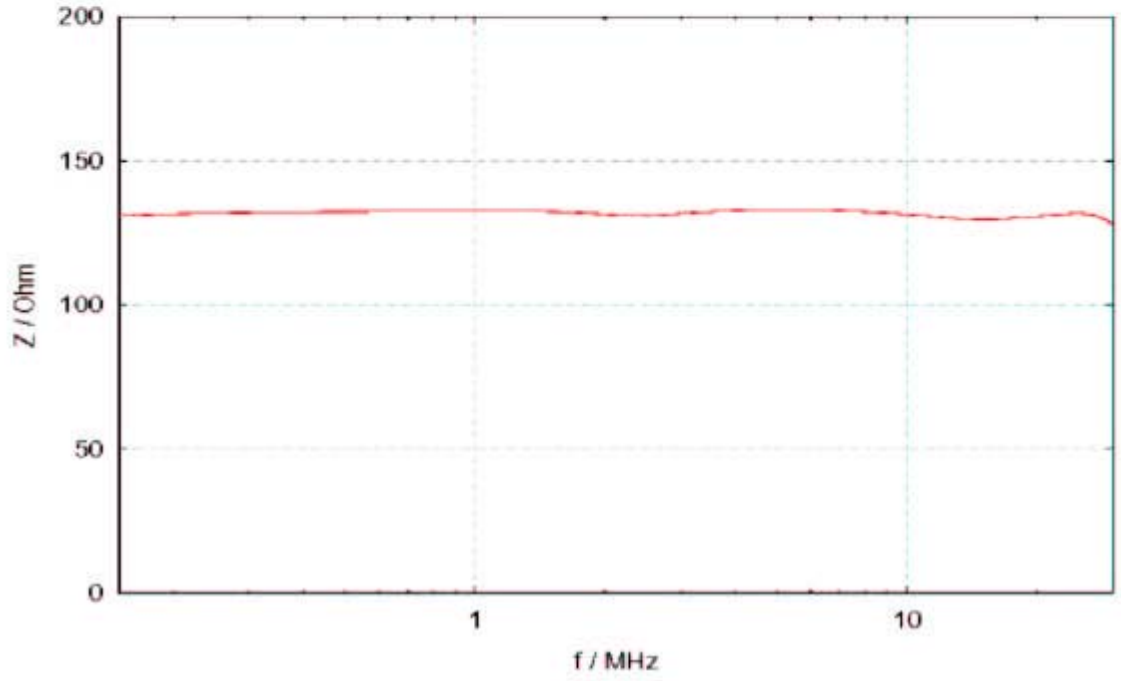
Following frequency characteristic is measured which is implemented in our measurement software(ESK-1 Version 1.5) as transducer factor.

b) asymmetrical impedance

The asymmetrical impedance is measured directly by the reflection-factor.
The manufacturer declares that the measurement uncertainty for the measurement of the reflection factor is less than 0.4dB.

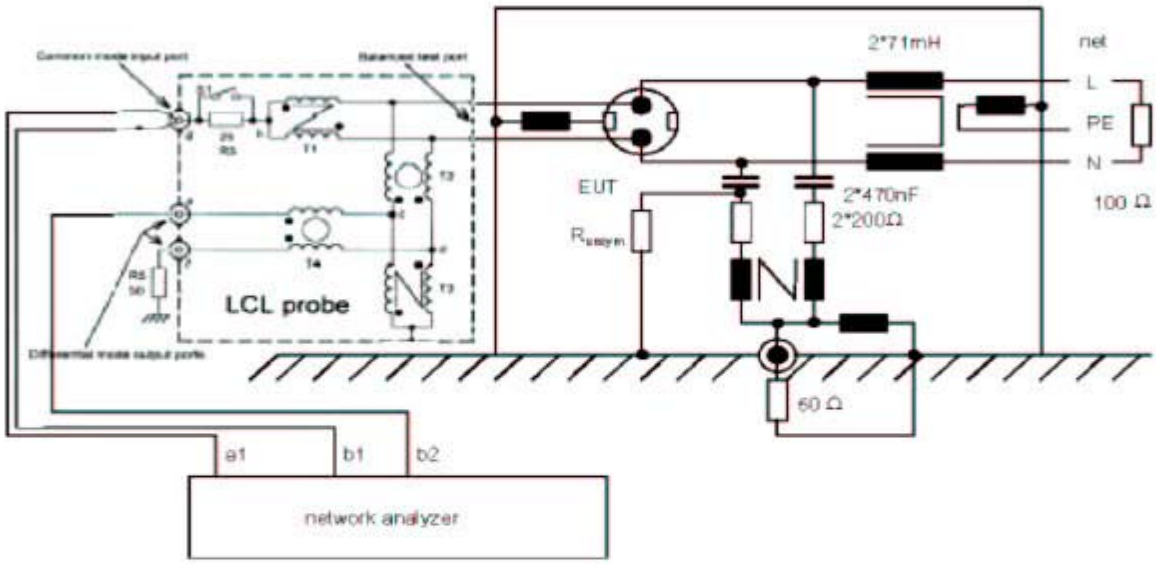


Following result is achieved. (a pure ohmical impedance is suggested):

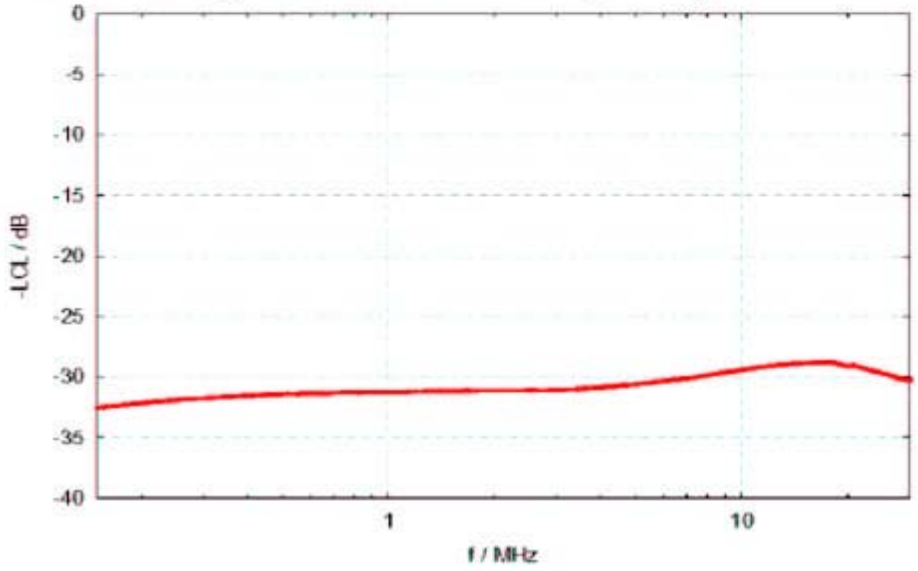


c) LCL

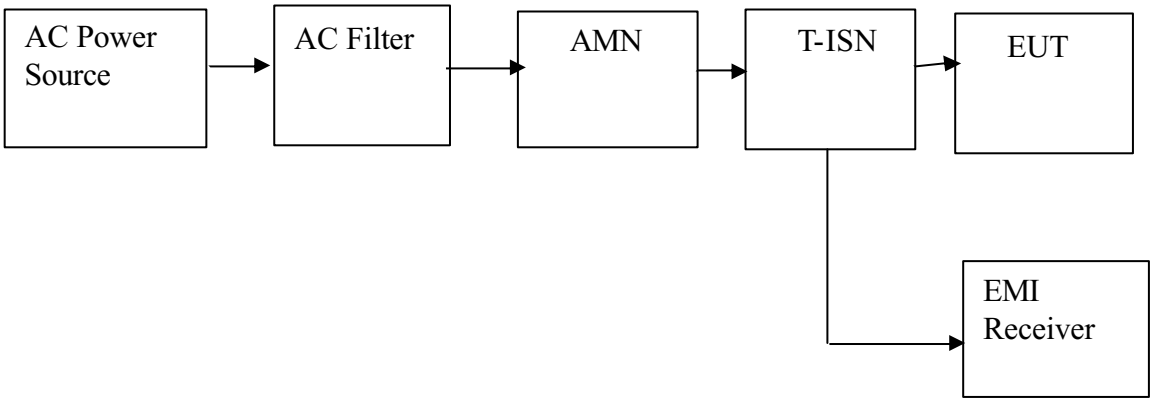
The measurement of the LCL is performed with a network analyzer with the LCL measurment adaptor according to Macfarlane IEEE Trans. On EMC, Vol 41, No 1,pp 3-14. Before measurement the measuring system is tested with a probe network (100Ω + 469Ω, according to Macfarlane). The result is that the desired 26.1dB LCL are measured. The network analyzer is used with switch in position „external measurement". Due to the voltage division at the „differential mode output" the result has to be corrected for 6dB and for the cable attenuation (that is already incluced in the graphics).



The measurement of the LCL at the T-ISN shows following trace:



5.2a Test Setup (T-ISN)



5.3 Conducted Disturbance Test Limits at Telecommunication (ISN)

Limits of conducted common mode disturbance at telecommunication ports

Limits of conducted common mode (asymmetric mode) disturbance
At telecommunication ports in the frequency range 0.15 MHz to 30MHz
For class A equipment

Frequency range MHz	Voltage limits dB (μV)		Current limits dB (μA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 to 0.5	97 to 87	84 to 74	53 to 43	40 to 30
0.5 to 30	87	74	43	30

NOTE 1 The limits decrease linearly with the logarithm of the frequency in to range 0.15 MHz to 0.5 MHz.
NNOTE 2 The current and voltage disturbance limits are derived for use with an impedance stabilization network (ISN) which presents a common mode (asymmetric mode) impedance of 150 ohm to the telecommunication port under test (conversion factor is 20 $\log_{10}$ 150/I=44dB).

Limits of conducted common mode (asymmetric mode) disturbance at telecommunication ports in the frequency range 0.15 MHz to 30 MHz
for class B equipment

Frequency range MHz	Voltage limits dB (μV)		Current limits dB (μA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 to 0.5	84 to 74	74 to 64	40 to 30	30 to 20
0.5 to 30	74	64	30	20

NOTE 1 The limits decrease linearly with the logarithm of the frequency in to range 0.15 MHz to 0.5 MHz.
NNOTE 2 The current and voltage disturbance limits are derived for use with an impedance stabilization network (ISN) which presents a common mode (asymmetric mode) impedance of 150 ohm to the telecommunication port under test (conversion factor is 20 $\log_{10}$ 150/I=44dB).

6. Description of Radiated Emissions Test

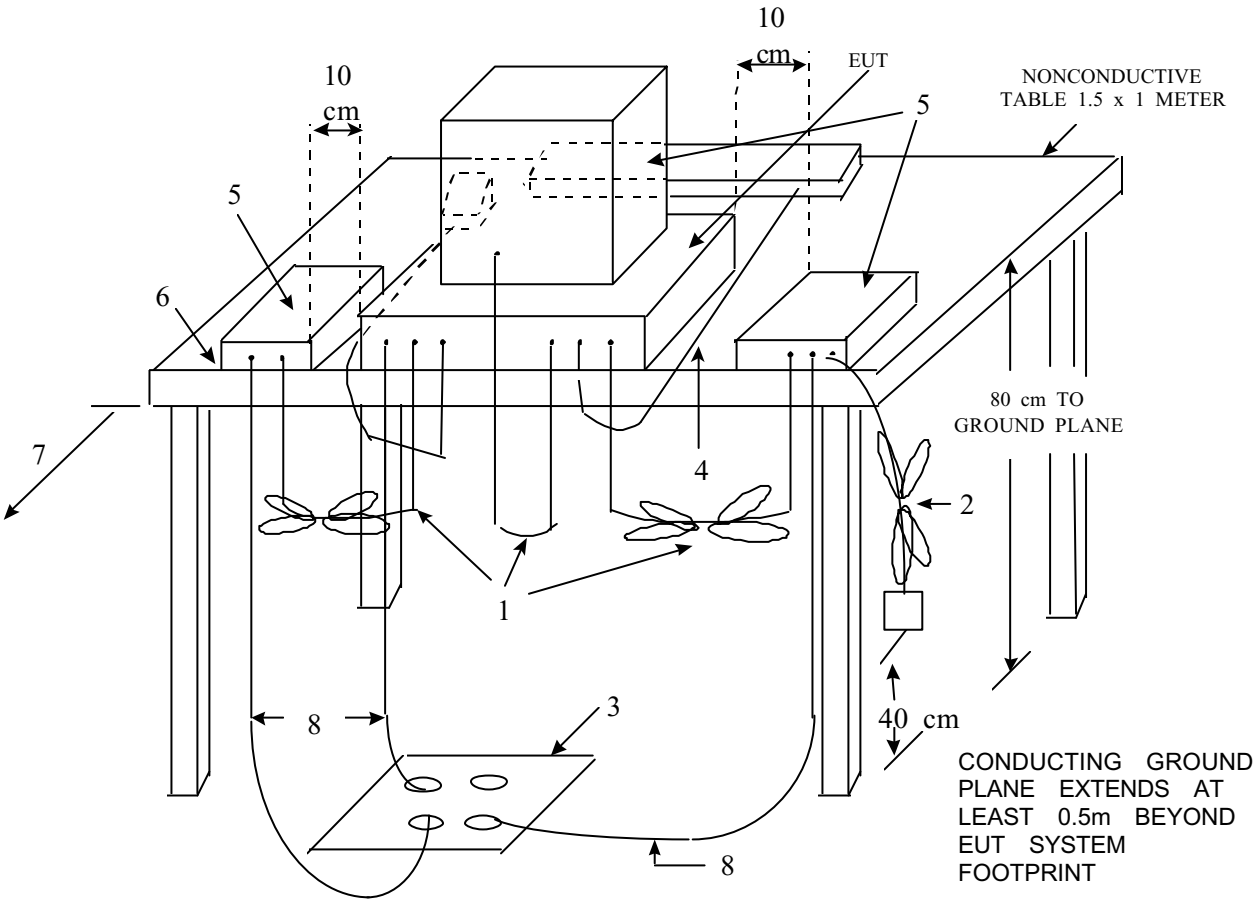
6.1 Radiated Emissions

Preliminary measurements were made indoors chamber at 3 meter using broadband antennas, broadband amplifier, and spectrum analyzer to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, turntable azimuth with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30 to 1000 MHz using logbicon antenna. Above 1GHz, linearly polarized double ridge horn antenna was used.

Final measurements were made outdoors at 10-meter test range using logbicon antenna and horn antenna. The test equipment was placed on a wooden bench situated on a 1.5x1 meter area adjacent to the measurement area. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined and investigated using Quasi-Peak Adapter. The detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 120KHz.

The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission. Each emission was maximized by: varying mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet , if applicable; and changing the polarity of the antenna, whichever determined the worst-case emission. Photographs of the worst-case emission can be seen in radiated emission test photo.

6.2 Test Configuration



LEGEND

1. Interconnecting cables which hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 to 40 cm long. hanging approximately in the middle between ground plane and table.
2. I/O cables which are connected to a peripheral hall be bundled in center. The end of the cable may b terminated if required using correct terminating impedance. The total length shall not exceed 1 m.
3. If LISN are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground if requires receptacle flush with the ground plane.
4. Cables of hand-operated devices, such as keyboards, KEYPADs, etc., have to be placed as close as possible to the controller.
5. Non-EUT components of EUT system being tested.
6. The rear of all components of the system under test shall be located flush with the rear of the table.
7. No vertical conducting wall used.
8. Power cords drape to the floor and are routed over to receptacle.

6.3 Radiated Emission Limits

Limits for radiated disturbance of Class A ITE at a measuring distance of 10 m

Frequency MHz	Field Strength dB(μV/m)
30 to 230	40
230 to 1000	47
NOTES 1 The lower limit shall apply at the transition frequency. 2 Additional provisions may be required for cases where interference occurs.	

Limits for radiated disturbance of Class B ITE at a measuring distance of 10 m

Frequency MHz	Field Strength dB(μV/m)
30 to 230	30
230 to 1000	37
NOTES 1. The lower limit shall apply at the transition frequency. 2. Additional provisions may be required for cases where interference occurs.	

7. Conducted Emissions Test Setup Photo

AMN, T-ISN

*** FRONT VIEW ***

ISN

*** FRONT VIEW ***

8. Conducted Emission Test Data (AMN)

Model No.	:	**WPL200**
Frequency range	:	**150kHz to 30MHz**
Detector	:	**Peak Value / Average Value**
Temperature	:	**28 ℃**
Humidity	:	**55 %**

Test Data : **#** **55** **#** **17** **< LINE >**
**56** **#** **18** **< NEUTRAL >**

Note 1. Level = Read Level + Cable Loss + Probe (LISN)
2. Over Limit = Level – Limit = Margin

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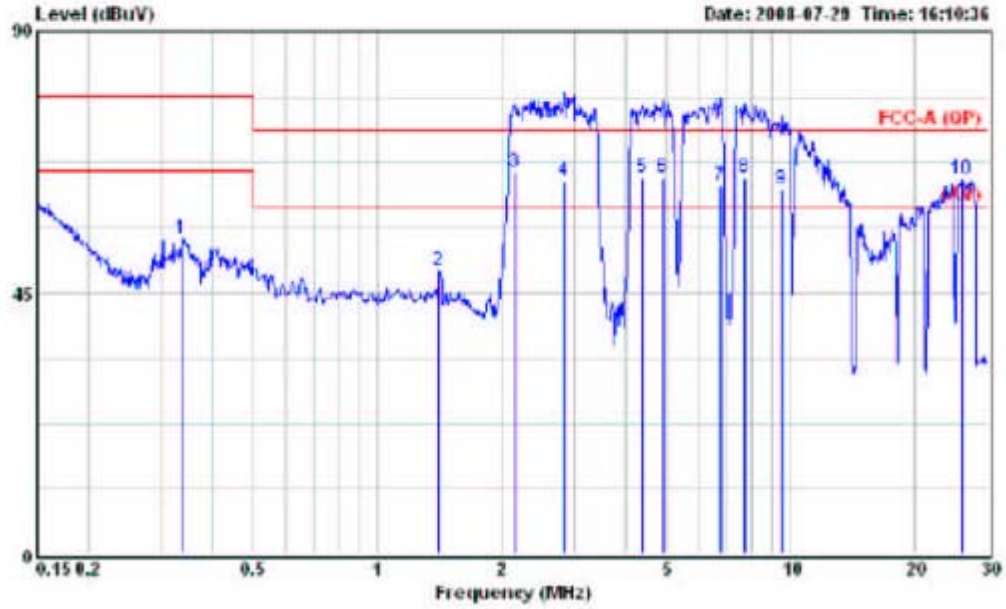

Site : Linko: Conduction No.2 (David)
Condition : FCC-A (QP) LISN.L(32A) LINE
eut : E970123
power : AC 120V 60Hz
Curve : Peak Value Curve
Detect : Quasi Peak Value
memo : T:28/H:55%

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.337	54.23	-24.77	79.00	54.03	0.10	0.10	
2	1.410	48.93	-24.07	73.00	48.65	0.15	0.13	
3 !	2.160	65.77	-7.23	73.00	65.40	0.20	0.17	QP
4 !	2.840	64.19	-8.81	73.00	63.80	0.20	0.19	QP
5 !	4.380	64.88	-8.12	73.00	64.40	0.21	0.27	QP
6 !	4.900	64.82	-8.18	73.00	64.30	0.22	0.30	QP
7 !	6.770	63.40	-9.60	73.00	62.84	0.26	0.30	QP
8 !	7.770	64.77	-8.23	73.00	64.20	0.27	0.30	QP
9 !	9.550	62.69	-10.31	73.00	62.10	0.29	0.30	QP
10 !	26.000	64.59	-8.41	73.00	63.34	0.93	0.32	

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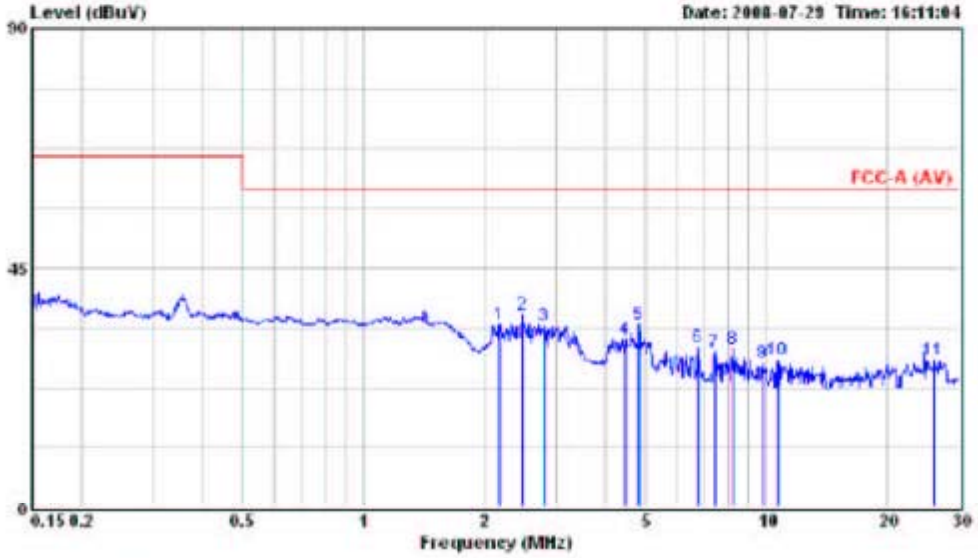

Site : Linko: Conduction No.2 (David)
Condition : FCC-A (AV) LISN.L(32A) LINE
FORM(eut) : E970123
power : AC 120V 60Hz
Cuvre : Average Value Curve
Detect : Average Value
memo : T:28/H:55%

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	2.170	34.61	-25.39	60.00	34.24	0.20	0.17	
2	2.470	36.15	-23.85	60.00	35.77	0.20	0.18	
3	2.810	34.17	-25.83	60.00	33.78	0.20	0.19	
4	4.450	31.61	-28.39	60.00	31.12	0.21	0.28	
5	4.820	34.59	-25.41	60.00	34.08	0.22	0.29	
6	6.770	30.04	-29.96	60.00	29.48	0.26	0.30	
7	7.450	29.24	-30.76	60.00	28.67	0.27	0.30	
8	8.280	29.77	-30.23	60.00	29.19	0.28	0.30	
9	9.810	27.24	-32.76	60.00	26.64	0.30	0.30	
10	10.680	27.71	-32.29	60.00	27.09	0.32	0.30	
11	26.140	27.74	-32.26	60.00	26.46	0.96	0.32	

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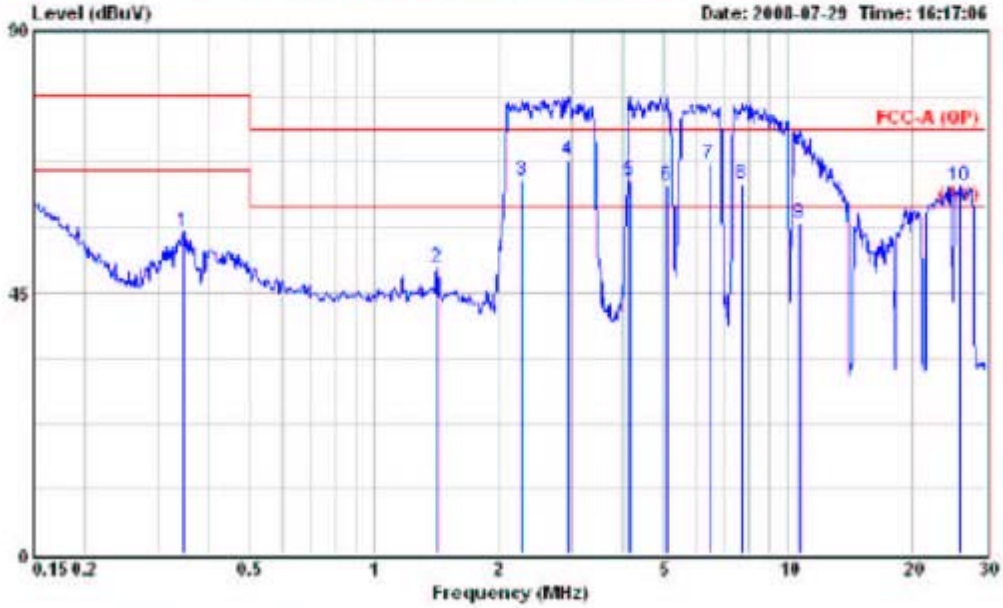
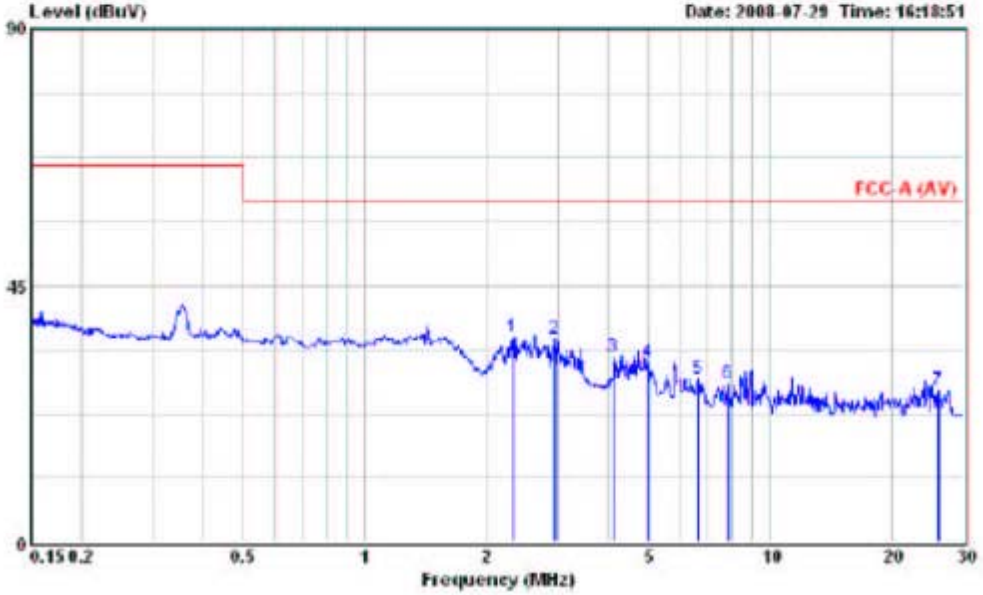


Site : Linko: Conduction No.2 (David)
Condition : FCC-A (QP) LISN.N(32A) NEUTRAL
eut : E970123
power : AC 120V 60Hz
Curve : Peak Value Curve
Detect : Quasi Peak Value
memo : T:28/H:55%

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.345	55.41	-23.59	79.00	55.21	0.10	0.10	
2		1.420	49.32	-23.68	73.00	48.99	0.20	0.13	
3	!	2.280	64.17	-8.83	73.00	63.80	0.20	0.17	QP
4	!	2.930	67.90	-5.10	73.00	67.50	0.20	0.20	QP
5	!	4.140	64.17	-8.83	73.00	63.71	0.20	0.26	QP
6	!	5.110	63.33	-9.67	73.00	62.80	0.23	0.30	QP
7	!	6.450	67.35	-5.65	73.00	66.80	0.25	0.30	QP
8	!	7.730	63.77	-9.23	73.00	63.20	0.27	0.30	QP
9		10.680	57.02	-15.98	73.00	56.40	0.32	0.30	QP
10	!	26.000	63.31	-9.69	73.00	62.81	0.18	0.32	

Data#: 18 File#: C:\Program Files\e3\97年\My Documents\FCC-A(AV).emi



Site : Linko: Conduction No.2 (David)
Condition : FCC-A (AV) LISN.N(32A) NEUTRAL
FORM(eut) : E970123
power : AC 120V 60Hz
Cuvre : Average Value Curve
Detect : Average Value
memo : T:28/H:55%

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	2.330	35.88	-24.12	60.00	35.50	0.20	0.18	
2	2.950	35.56	-24.44	60.00	35.16	0.20	0.20	
3	4.110	32.41	-27.59	60.00	31.95	0.20	0.26	
4	5.000	31.70	-28.30	60.00	31.18	0.22	0.30	
5	6.660	28.59	-31.41	60.00	28.04	0.25	0.30	
6	7.850	27.72	-32.28	60.00	27.15	0.27	0.30	
7	26.000	26.48	-33.52	60.00	25.98	0.18	0.32	

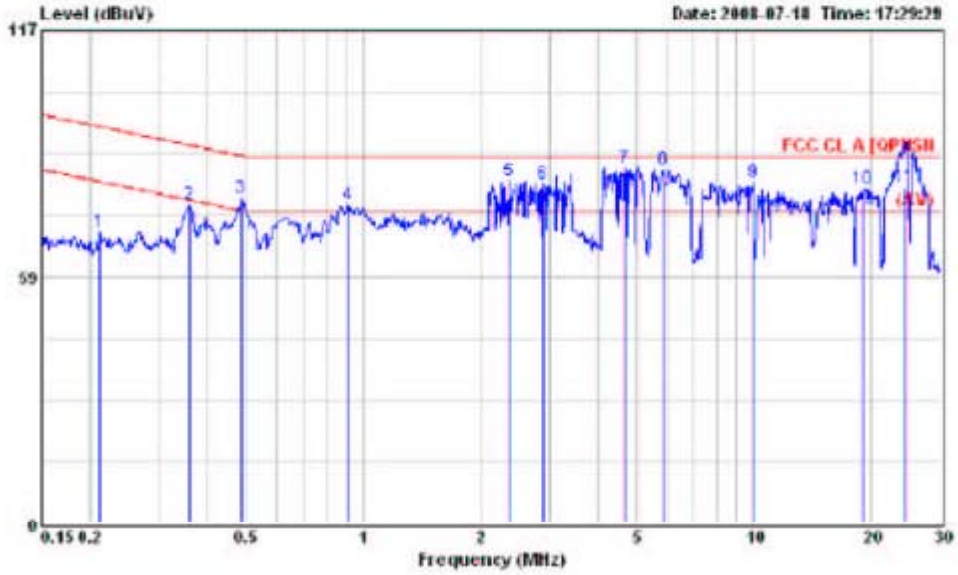
Conducted Emissions Test Data (T-ISN)

Model No.	:	**WPL200**
Frequency range	:	**150kHz to 30MHz**
Detector	:	**Peak Value**
Temperature	:	**28 ℃**
Humidity	:	**44 %**

Test Data : # **16** **#** **8** **<** Peak **>**

Note 1. Level = Read Level + Cable Loss + Probe (LISN)
2. Over Limit = Level – Limit = Margin

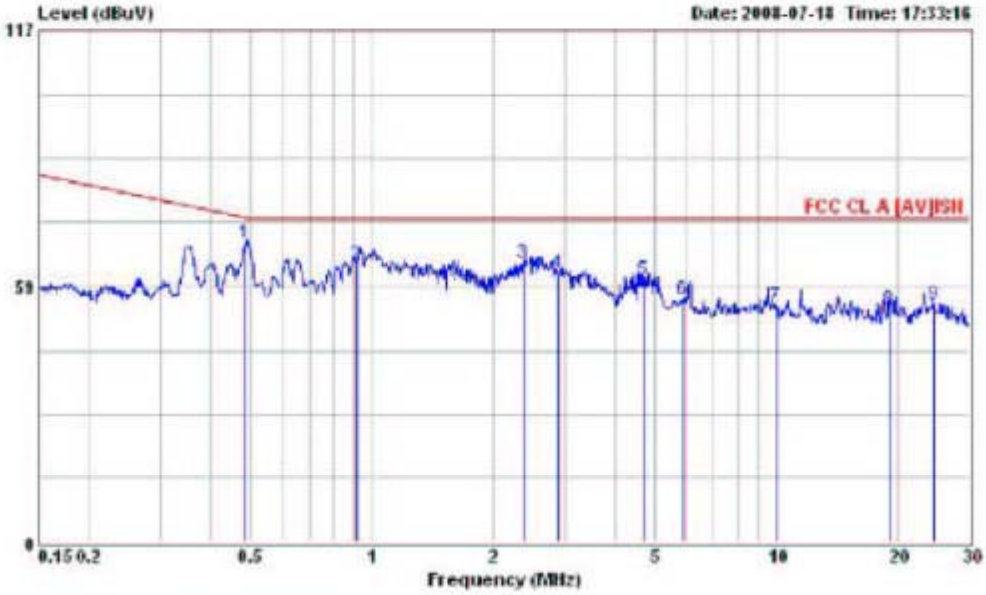
Data#: 16 File#: C:\Program Files\e3\97年\My Documents\ISN-A(QP).emi



Site : Linko: Conduction No.2 (David)
Condition : FCC CL A [QP]ISN ISN(POWER LINE)
Form : E970123 (Powerline)
Power : AC 120V 60Hz
Curve : Peak Value
Detect : Quasi Peak Value
Memo : T:28/H:44%,

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.212	69.21	-24.92	94.13	49.04	20.07	0.10	
2		0.358	75.44	-14.33	89.77	55.18	20.16	0.10	
3	!	0.486	77.04	-10.20	87.24	56.72	20.22	0.10	
4	!	0.914	75.61	-11.39	87.00	55.17	20.34	0.10	
5	!	2.360	81.24	-5.76	87.00	60.54	20.52	0.18	
6	!	2.900	80.58	-6.42	87.00	59.82	20.56	0.20	
7	!	4.700	84.45	-2.55	87.00	63.51	20.65	0.29	
8	!	5.870	83.93	-3.07	87.00	62.94	20.69	0.30	
9	!	9.970	80.94	-6.06	87.00	59.85	20.79	0.30	
10	!	19.020	79.42	-7.58	87.00	58.23	20.91	0.28	
11	!	24.450	79.66	-7.34	87.00	58.40	20.96	0.30	QP

Data#: 8 File#: C:\Program Files\e3\97年\My Documents\ISN-A(AV).EMI



Site : Linko: Conduction No.2 (David)
Condition : FCC CL A [AV]ISN ISN(POWER LINE)
Form : E970123
Eut :
Power : AC 120V 60Hz
Memo : Average Value

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.486	68.22	-6.02	74.24	48.00	20.22	0.00	
2	0.914	63.26	-10.74	74.00	42.92	20.34	0.00	
3	2.360	63.96	-10.04	74.00	43.44	20.52	0.00	
4	2.900	61.52	-12.48	74.00	40.96	20.56	0.00	
5	4.700	60.17	-13.83	74.00	39.52	20.65	0.00	
6	5.870	55.48	-18.52	74.00	34.79	20.69	0.00	
7	9.970	53.96	-20.04	74.00	33.17	20.79	0.00	
8	19.020	53.26	-20.74	74.00	32.35	20.91	0.00	
9	24.530	54.14	-19.86	74.00	33.18	20.96	0.00	

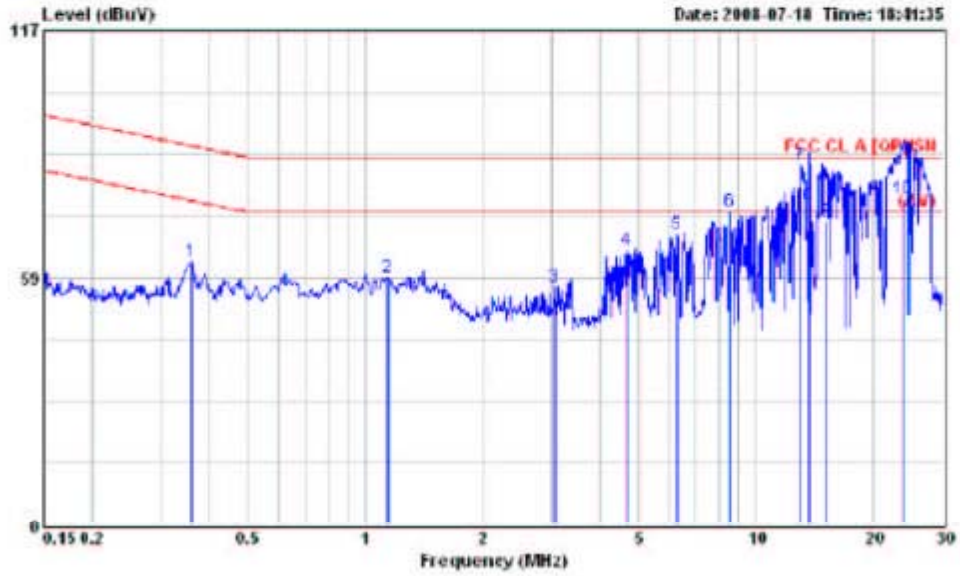
Conducted Emissions Test Data (ISN)

Model No.	:	**WPL200**
Frequency range	:	**150kHz to 30MHz**
Detector	:	**Peak Value**
Temperature	:	**28 ℃**
Humidity	:	**44 %**

Test Data : # **24** # **16** **<** Peak **>**

Note 1. Level = Read Level + Cable Loss + Probe (LISN)
2. Over Limit = Level – Limit = Margin

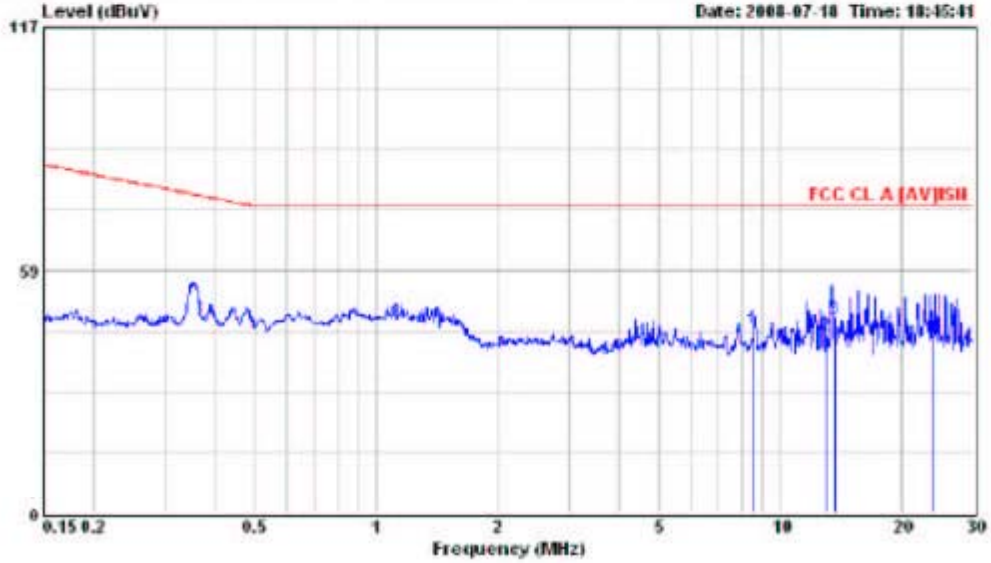
Data#: 24 File#: C:\Program Files\e3\97年\My Documents\ISN-A(QP).emi



Site : Linko: Conduction No.2 (David)
Condition : FCC CL A [QP]ISN ISN (LAN)
Form : E970123 (Powerline)
Power : AC 120V 60Hz
Curve : Peak Value
Detect : Quasi Peak Value
Memo : T:28/H:44%,

		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.360	62.35	-27.38	89.73	52.65	9.60	0.10	
2		1.140	58.67	-28.33	87.00	49.00	9.56	0.11	
3		3.060	56.10	-30.90	87.00	46.34	9.56	0.20	
4		4.700	64.98	-22.02	87.00	55.13	9.56	0.29	
5		6.290	68.82	-18.18	87.00	58.96	9.56	0.30	
6	!	8.590	74.11	-12.89	87.00	64.25	9.56	0.30	
7	!	13.060	85.02	-1.98	87.00	75.16	9.56	0.30	
8	!	13.700	75.42	-11.58	87.00	65.59	9.56	0.27	QP
9		15.150	71.66	-15.34	87.00	61.91	9.55	0.20	QP
10	!	23.890	77.06	-9.94	87.00	67.20	9.56	0.30	QP

Data#: 16 File#: C:\Program Files\e3\97年\My Documents\ISN-A(AV).EMI



Site : Linko: Conduction No.2 (David)
Condition : FCC CL A [AV]ISN ISN (LAN)
Form : E970123
Eut :
Power : AC 120V 60Hz
Memo : Average Value

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	8.590	44.35	-29.65	74.00	34.79	9.56	0.00	
2	13.060	42.82	-31.18	74.00	33.26	9.56	0.00	
3	13.700	46.55	-27.45	74.00	36.99	9.56	0.00	
4	23.890	42.13	-31.87	74.00	32.57	9.56	0.00	

9. Radiated Emissions Test Setup Photos

*** FRONT VIEW ***

*** REAR VIEW ***

10. Radiated Emissions Test Data

Model No.	**: WPL200**		
Frequency range	**: 30MHz to 1GHz**	**Detector**	**: Quasi-Peak Value**
Frequency range	**: above 1GHz**	**Detector**	**: Quasi-Peak/Average Value**
Temperature	**: 29° C**	**Humidity**	**: 61 %**

Antenna polarization : HORIZONTAL ; Test distance : 10m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Azimuth (°angle)	Antenna High(m)
54.300	30.40	- 8.60	39.00	38.65	9.88	2.68	20.81	276	4.0
119.990	30.14	-13.36	43.50	36.71	10.89	3.24	20.70	261	4.0
200.000	38.39	- 5.11	43.50	44.31	10.64	3.74	20.30	259	4.0
249.990	26.40	-20.00	46.40	31.90	10.55	4.05	20.10	277	4.0
561.870	30.65	-15.75	46.40	27.04	18.02	5.54	19.95	266	3.5
875.110	34.24	-12.16	46.40	25.41	22.21	6.42	19.80	260	3.3

Antenna polarization : VERTICAL ; Test distance : 10m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Azimuth (°angle)	Antenna High(m)
57.110	27.33	-11.67	39.00	34.45	10.89	2.74	20.75	188	1.0
120.050	32.08	-11.42	43.50	38.65	10.89	3.24	20.70	174	1.0
200.010	37.09	- 6.41	43.50	43.01	10.64	3.74	20.30	167	1.0
224.870	28.14	-18.26	46.40	33.91	10.65	3.83	20.25	170	1.0
500.050	34.17	-12.23	46.40	31.87	16.75	5.36	19.81	161	1.4
743.450	37.59	- 8.81	46.40	29.92	20.83	6.25	19.41	166	1.5

Note :

1. Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

11. The List of Test Instruments

Test Site	Instrument	Model No.	S/N	Next Cal. Date	Cal. Interval
Conduction (No.2)	R & S Spectrum	FSP 3	833387/010	Aug. 21, 2008	1 Year
	R & S Receiver	ESHS10	830223/008	Sep. 08, 2008	1 Year
	R & S LISN(EUT)	ESH2-Z5	831886/004	Apr. 14, 2009	1 Year
	Kyoritsu LISN(2nd)	KNW-242	8-837-7	N/A	N/A
	RF Cable	No.4	N/A	Jan. 01, 2009	1 Year
Radiation (OP No.3)	R & S Receiver	ESVS 30	863342/012	Aug. 19, 2008	1 Year
	Schaffner Pre-Amp.	CPA-9232	1012	Jan. 01, 2009	1 Year
	SCHWARZBECK Antenna	9161	9161-4077	July 19, 2009	1 Year
	RF Cable	No.3	N/A	Jan. 01, 2009	1 Year
	R & S Signal Generator	SMY02	829846/038	Apr. 28, 2010	2 Years

12. Labelling Requirement

A warning label with the following statement shall be permanently attached and conspicuously located on the equipment :

> This device complies with Part 15 of the FCC Rules . Operation is subject to the following two conditions : (1) This device may not cause harmful interference , and (2) this devices must accept any interference received , including interference that may cause undesired operation .

13. Information to The User

The following FCC statement should be declared in a conspicuous location in the user' s manual .

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

14.EUT Photographs

MODEL NO. : WPL200

EUT FRONT VIEW

EUT REAR VIEW

VERIFICATION

WE HEREBY VERIFY THAT:

The Equipment Under Test (EUT) listed below has completed RFI testing by PEP Testing Laboratory and the interference emissions can pass **FCC Class A** limitations .

The test report shall not be reproduced except in full, without the written approval of the laboratory.

The estimate uncertainty of the test result is about ±3dB. The test result is only effect for the sample as below.

APPLICANT : **ACEEX CORPORATION**

EQUIPMENT : **Powerline 200M Wireless AP, Powerline 200M Wireless Router, Powerline 200M Router, Powerline/Cable 200M Wireless AP, Powerline/Cable 200M Wireless Router, Powerline/Cable 200M Router, Cable 200M Wireless AP, Cable 200M Wireless Router, Cable 200M Router, Wireless Router, Broadband Router**

MODEL NO. : **WPL200, NPL200, WPR200, NPR200, PR200, WPL200C, NPL200C, WPR200C, NPR200C, PR200C, WCL200, NCL200, WCR200, NCR200, CR200, WR, NR, BR**

REPORT NO. : **E970123**

M. Y. TSUI / Manager

Date : JULY 29, 2008