



Compliance Test Report for FCC

Report Number		ESTF150306-001			
Applicant	Company name	WELLINK CORPORATION			
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	Telephone	82-31-601-6660			
Product	Product name	ADSL Modem			
	Model No.	Neobit1014VA,WEL+8010VD, Neobit1012VA,WEL+8010VE	Manufacturer	WELLINK CORPORATION	
	Serial No.	NONE	Country of origin	Korea	
Test date	2003-06-20 ~ 2003-06-20		Date of issue	2003-06-20	
Testing location	ESTECH. Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea				
Standard	FCC PART 15 2002 , ANSI C 63.4 2001				
Test item	<input checked="" type="checkbox"/> Conducted Emission	<input type="checkbox"/> Class A	<input checked="" type="checkbox"/> Class B	Test result	OK
	<input checked="" type="checkbox"/> Radiated Emission	<input type="checkbox"/> Class A	<input checked="" type="checkbox"/> Class B	Test result	OK
Measurement facility registration number		94696			
Tested by	Senior Engineer J.M. Yang		(Signature) 		
Reviewed by	Director T.K. Lee		(Signature) 		
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable				
<p>* Note</p> <ul style="list-style-type: none"> - This test report is not permitted to copy partly without our permission - This test result is dependent on only equipment to be used - This test result based on a single evaluation of one sample of the above mentioned - WEL+8010VD, Neobit1014VA, WEL+8010VE, Neobit1012VA are same product. Only model name is different 					

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1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report.

ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.

ESTECH Lab assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test Lab.

Corporation Name : ESTECH Co. Ltd

Head Office : 3 rd Fl., Chungdam Bldg., 119-1 Chungdam-dong Kangnam-gu , Seoul, Korea
(Safety & Telecom. Test Lab)

EMC Test Lab : 58-1 Osan-Ri, GaNam-Myon, YeoJoo-Gun, KyungKi-Do, Korea
97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea

1.3 Official Qualification(s)

MIC : Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication

KOLAS : Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements

FCC : Filed Laboratory at Federal Communications Commission

VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE

2. Description of EUT

2.1 Summary of Equipment Under Test

Product : ADSL Modem

Model Number : Neobit1014VA,WEL+8010VD, Neobit1012VA,WEL+8010VE

Serial Number : NONE

Manufacturer : WELLINK CORPORATION

Country of origin : Korea

Rating : 5V, 1.2A

Receipt Date : 2003-06-05

2.2 General descriptions of EUT

- Internal ADSL modem for high-speed Internet access
- 10/100Base-T Router to provide Internet connectivity to all computers on your LAN
- USB port for connecting a USB-enabled PC
- Network address translation (NAT), Firewall, and IP filtering functions to provide security for your LAN
- Network configuration through DHCP Server and DHCP Relay
- Services including IP route and DNS configuration, RIP, and IP and DSL performance monitoring
- Configuration program you access via an HTML browser

3. Test Standards

Test Standard : FCC PART 15 (2002)

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

Test Method : ANSI C 63.4 (2001)

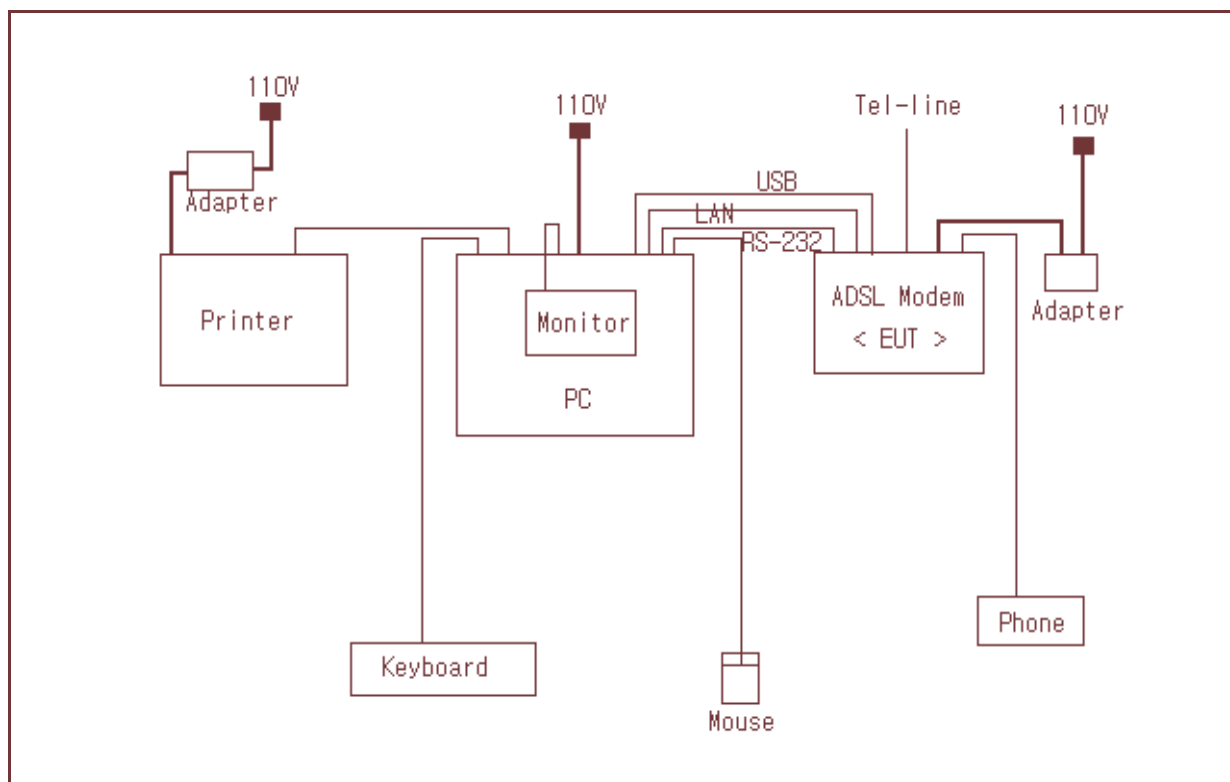
This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain devices that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment. These methods apply to the measurement of individual units or systems comprised of multiple units.

4. Measurement Condition

4.1 EUT Operation.

- * The EUT was in the following operation mode during all testing
- * The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected highest level of emission
- * After setting to arrangement diagram, we test EUT under transmiing/receiving the packet data at PC

4.2 Configuration and Peripherals



4.3 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
ADSL Modem	WEL+8010VD, Neobit1014VA, WEL+8010VE, Neobit1012VA	NONE	WELLINK CORPORATION	EUT
Personal Computer	DHS(OptiPlex GX50)	11484	Dell	—
Monitor	FS740	145CJ64DD100	Compaq	—
Keybaord	SEM-DT35	32006555	Samsung Electro-	—
Mouse	X05-51692	6444127-10000	Microsoft	—
Phone	SP-FZ14	KKAN529272	SAMSUNG	—
Adapter	8PA-069A	BA32000567	InterCom Co., Ltd	—
Printer	C64145	TH18M149P2	HP	—
Adapter	C6469-60152	NONE	YOKOGAWA	—

4.4 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
ADSL Modem	RS-232	Personal Computer	Serial	2.0	N	—
ADSL Modem	LAN	Personal Computer	10/100Base TX	2.0	N	—
ADSL Modem	USB	Personal Computer	USB	1.0	Y	—
ADSL Modem	Power	Adapter	Power	1.5	N	—
ADSL Modem	TEL	Phone	—	1.5	N	—
ADSL Modem	LINE	—	—	25.0	N	—
Personal Computer	PS/2 Keyboard	Keybaord	PS/2 Keyboard	2.0	N	—
Personal Computer	PS/2 Mouse	Mouse	PS/2 Mouse	2.0	N	—
Personal Computer	Video	Monitor	Video	2.0	Y	—
Personal Computer	Parallel	Printer	Parallel	2.0	Y	—
Printer	Power	Adapter	Power	2.0	N	—

5. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2002) & ANSI C 63.4 (2001). The test setup was made according to FCC Part 15 (2002) & ANSI C 63.4 (2001) on an open test site, which allows a 3m distance measurement. The EUT was placed in the center of wooden turntable. The height of this table was 0.8m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test set-up.

5.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Receiver	ESPC	Rohde & Schwarz	845296/021	2004.6.17
Spectrum Analyzer	R3261B	ADVANTEST	1720302	2004.2.7
LogBicon Antenna	VULB 9160	S/B	3107	2004.6.13
Turn Table	2087	EMCO	2129	–
Antenna Mast	2070-01	EMCO	9702-203	–
ANT Mast Controller	2090	EMCO	1535	–
Turn Table Controller	2090	EMCO	1535	–

5.2 Environmental Condition

Test Place : Open site(3m)
 Temperature (°C) : 26 °C
 Humidity (%) : 30 %

5.3 Test data

Measurement Distance : 3 m

Frequency (MHz)	Reading (dB μ V)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dB μ V/m)	Result (dB μ V/m)	Margin (dB μ V/m)
31.30	18.00	V	1.0	12.25	0.9	40.0	31.14	-8.86
54.00	20.20	V	1.0	12.61	1.1	40.0	33.86	-6.14
73.23	14.20	V	1.0	11.04	1.3	40.0	26.53	-13.47
125.01	25.30	V	1.0	12.10	1.7	43.5	39.10	-4.40
130.27	15.20	V	1.0	12.63	1.7	43.5	29.53	-13.97
149.05	16.20	V	1.0	13.45	1.9	43.5	31.54	-11.96
184.00	12.80	H	1.7	12.50	2.1	43.5	27.37	-16.13
200.01	22.40	V	1.0	10.38	2.2	43.5	34.96	-8.54
225.00	22.40	V	1.0	10.88	2.3	43.5	35.61	-7.89
240.00	23.80	V	1.0	11.71	2.4	46.0	37.91	-8.09
331.05	8.40	V	1.0	13.89	2.8	46.0	25.08	-20.92
375.00	18.20	H	1.2	14.73	3.1	46.0	35.98	-10.02
400.04	16.10	H	1.4	15.32	3.2	46.0	34.57	-11.43
500.00	22.10	V	1.0	17.06	3.6	46.0	42.71	-3.29
596.18	16.80	V	1.0	19.06	3.9	46.0	39.79	-6.21
Remark	H : Horizontal, V : Vertical							

6. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 to 30 MHz was measured in accordance to FCC Part 15 (2002) & ANSI C 63.4 (2001). The test setup was made according to FCC Part 15 (2002) & ANSI C 63.4 (2001) in a shielded. The EUT was placed on a non-conductive table at least 80 above the ground plan. A grounded vertical reference plane was positioned in a distance of 40cm from the EUT. The distance from the EUT to other metal surfaces was at least 0.8m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0m.. The test receiver with Quasi Peak detector complies with CISPR 16.

6.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
LISN	ESH3-Z5	Rohde & Schwarz	838979/010	2004. 2. 7
LISN	NNLA8120A	Schwarzbeck	NONE	2004. 2. 7
TEST Receive	ESPC	Rohde & Schwarz	845296/021	2004. 6. 17
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	2004. 6. 17

6.2 Environmental Condition

Test Place : Shield Room
 Temperature (°C) : 22 °C
 Humidity (%) : 38 %

6.3 Test data

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dB μ V)	Reading (dB μ V)	Result (dB μ V)	Limit (dB μ V)	Reading (dB μ V)	Result (dB μ V)
0.150	0.07	0.0	N	66.00	36.70	36.77	56.00		
0.197	0.07	0.0	H	63.75	51.07	51.17	53.75	44.54	44.64
0.262	0.07	0.1	H	61.37	41.49	41.63	51.37		
0.328	0.07	0.1	H	59.51	40.10	40.28	49.51		
0.393	0.07	0.1	H	57.99	41.43	41.65	47.99		
0.461	0.07	0.2	N	56.67	35.23	35.48	46.67		
0.524	0.07	0.2	H	56.00	39.84	40.11	46.00		
0.591	0.08	0.2	H	56.00	40.80	41.08	46.00		
1.774	0.11	0.3	N	56.00	42.69	43.07	46.00		
3.355	0.15	0.3	N	56.00	40.67	41.12	46.00		
3.548	0.16	0.3	H	56.00	41.38	41.84	46.00		
3.751	0.16	0.3	N	56.00	39.95	40.41	46.00		
5.326	0.21	0.3	N	60.00	42.33	42.86	50.00		
5.455	0.22	0.3	H	60.00	44.75	45.29	50.00		
5.722	0.23	0.3	H	60.00	43.10	43.66	50.00		
5.861	0.23	0.3	N	60.00	44.90	45.48	50.00		
7.039	0.28	0.4	N	60.00	28.75	29.43	50.00		
28.843	0.73	0.9	H	60.00	33.39	35.02	50.00		
Remark	H : Hot Line, N : Neutral Line								

7. Photographs of test setup

7.1 Setup for Radiated Test : 30 ~ 1000 MHz

[Front]



[Rear]



7.2 Setup for Conducted Test : 0.15 ~ 30 MHz

[Front]



[Rear]



8. Photographs of EUT

[Front]

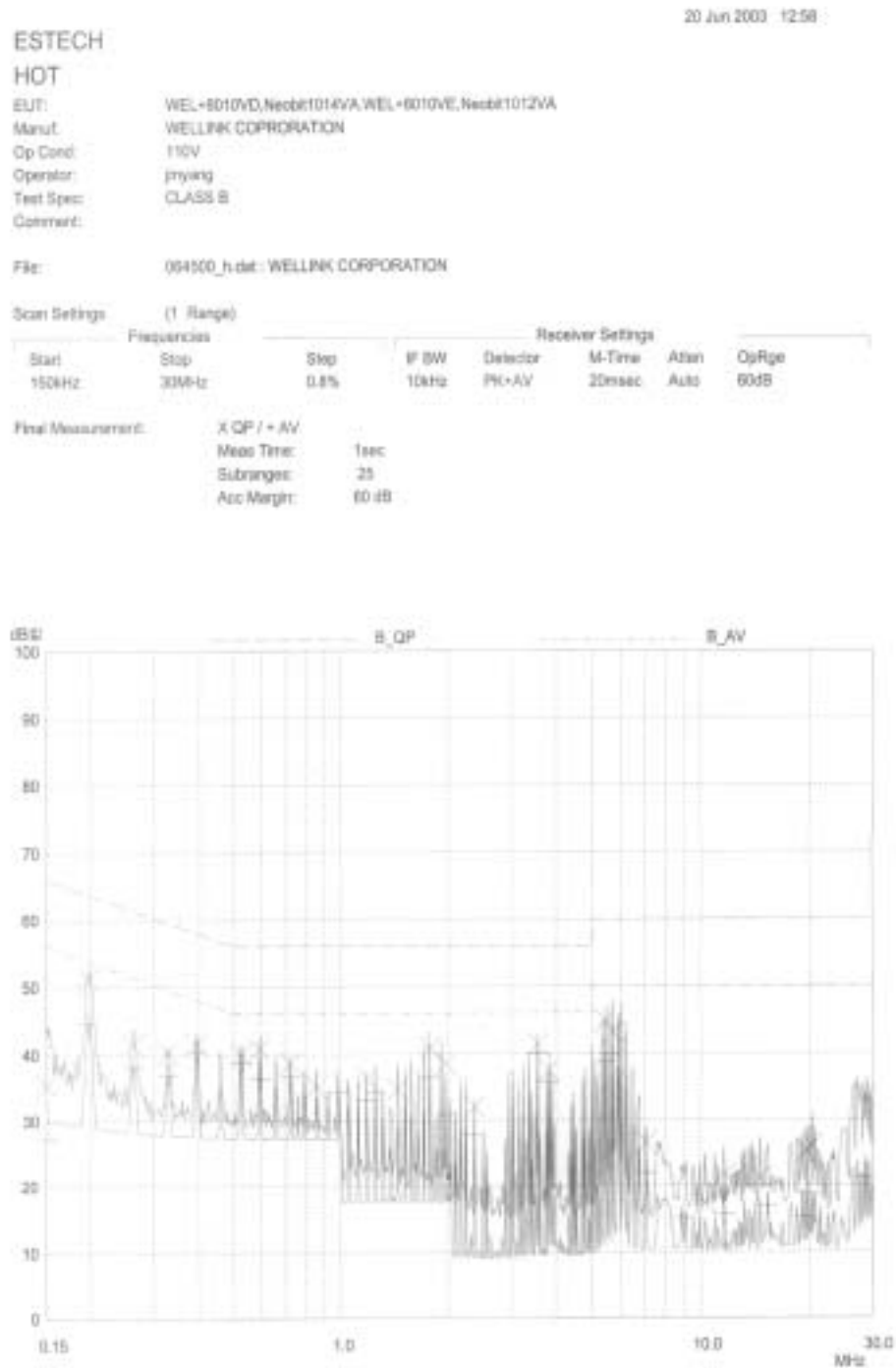


[Rear]



Appendix 1. Spectral diagram

*HOT



*NETRUL

ESTECH
NEUTRAL

20 Jun 2003 12:50

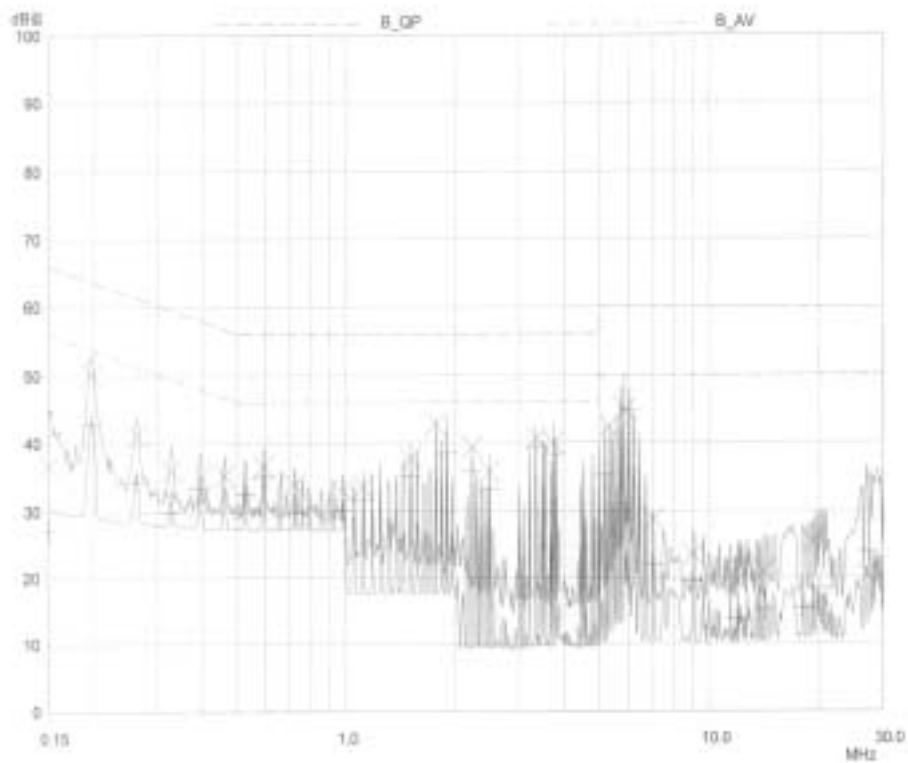
EUT: WEL+8010VD,Neobk1014VA,WEL+8010VE,Neobk1012VA
Manuf: WELLINK CORPORATION
Op Cond: 110V
Operator: jmyang
Test Spec: CLASS-B
Comment:

File: 064500_n.dat: WELLINK CORPORATION

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge
100kHz	30MHz	0.8%	10kHz	PK+AV	20msec	Auto	60dB

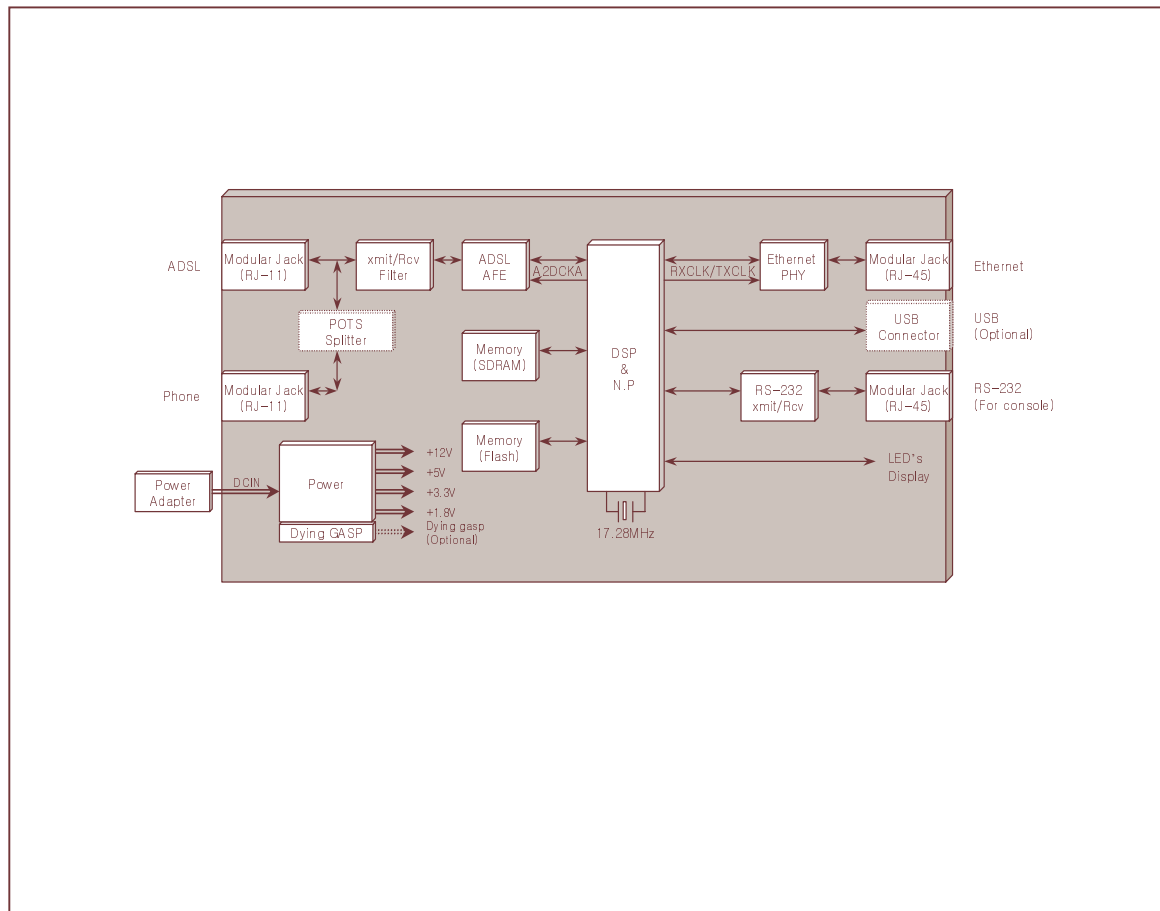
Final Measurement: X OP / + AV
Meas Time: 1sec
Subranges: 25
Acc Margin: 60 dB



Appendix 2. Phorographs of EUT in side PCB



Appendix 3. Block diagram of EUT



Appendix 4. Circuit Diagram