FCC PART 15 SUBPART B
CERTIFICATION REPORT

KENWOOD CORPORATION COMMUNICATION EQUIPMENT DIVISION

SCANNING RECEIVER
(As PC peripheral)

FCC ID : K4428871110

Z02C-98265

October, 1998

ZACTA TECHNOLOGY CORPORATION

4149-7 Hachimanpara 5-chome
Yonezawa-shi Yamagata
992-11 Japan

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CERTIFICATE COMPLIANCE

ZACTA TECHNOLOGY CORPORATION
YONEZAWA TESTING CENTER
4149-7 Hachimanpara 5-chome
Yonezawa-shi Yamagata 992-1128
Japan

This device was measured pursuant to ANSI C63.4-1992 by Zacta Technology Corporation. The data in this application complies with the applicable technical standards as indicated in the measurements report and FCC Part 15 Class B limits. The EUT complies with section 15.37 "Transition provision for compliance with the rules".

APPLICANT : KENWOOD CORPORATION COMMUNICATION EQUIPMENT DIVISION
FCC ID : K4428871110
FCC RULE PART : FCC Part 15 Subpart B, Docket 87-389
EQUIPMENT CLASS : Class B
EUT TYPE : SCANNING RECEIVER / Peripheral
FREQ. RANGE : VHF 118MHz – 173.995MHz
UHF 400MHz – 469.995MHz
DATE OF TEST : September 9, 14, 1998
MEASUREMENT : ANSI C63.4-1992
TEST RESULT : PASS
REPORT NO. : Z02C-98265
REMARKS : No modification was made during testing.
EUT is powered from battery

Zacta Technology Corporation certifies that no party to the application is subject to a denial of federal benefits, that includes FCC benefits, pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21U.S.C. 853(a).

Authorized by : Shin-ichi Abe
General Manager, Zacta Technology Corporation Yonezawa Testing Center

The results in this test report apply only to the samples tested.
This report shall not be re-product except in full without the written approval of Zacta Technology Corporation.

TECHNICHAL INFORMATION

DESCRIPTION FOR TEST SITE

1. LOCATION: ZACTA TECHNOLOGY CORPORATION YONEZAWA TESTING CENTER
4149-7 Hachimanpara 5-chome, Yonezawa-shi Yamagata 992-1128 Japan
Phone: +81-238-28-2880 Fax: +81-238-28-2888

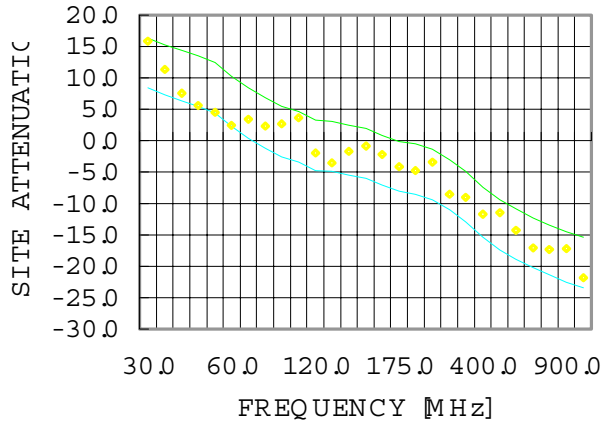
2. THE NUMBER OF SITE: Total: 4 sites #1 site
#2 site
#3 site
#4 site

3. THE TYPE OF SITE : Weather protected site

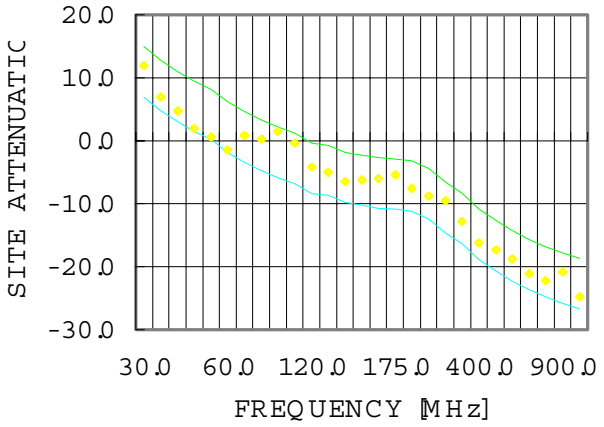
4. TEST TYPE : All site could perform as follows tests:
1) 3/10m Radiated emission test
2) Conducted emission test

5. NORMALIZED SITE ATTENUATION GRAPH

ANSI Site Attenuation
SITE3 3m VERT



ANSI Site Attenuation
SITE3 3m HORZ



6. FACILITY FILING INFORMATION

FCC FINAL SITE FILING: January 29, 1997 (Final date)
§2.948 Pursuant to ANSI C63.4-1992
#1 site
#2 site
#3 site
• #4 site (Final date: June 18, 1998)

*3m/10m Radiated emission test & Conducted emission test could be performed on each site

VCCI FINAL SITE FILING: April 1, 1997 (Final date)
V-5/97.04 Pursuant to VCCI Regulations for Registration of
measurement facilities
#1 site R - 136 C - 132
#2 site R - 137 C - 133
#3 site R - 138 C - 134
#4 site R - 752 C - 775 (Final date: June 23, 1998)

NVLAP ACCREDITION :

NVLAP CODE: 200306-0

NVLAP INFORMATION

NVLAP accreditation does not constitute any product endorsement by NVLAP or any agent
of the U.S. Government

DESCRIPTION OF RADIATED EMISSION TESTING

Measurements: were made at 3 meter using broadband antenna (Biconical Antenna and log-periodic antenna) & Test receiver. Frequency Range : 30MHz - 1GHz was scanned and investigated using receiver. Six highest emissions(Min.) was reported. The test results represents the worst case

emissions for each emission with manipulating the EUT, support equipment and interconnecting cables maximize the worst emissions in this test report.

Condition:
The detector function of the test receiver was set to CISPR Quasi-peak mode and the bandwidth was set to 120kHz. Sufficient time for the EUT, support equipment, and test equipment were allowed in order for them to warm up to their normal operating condition.
The EUT and support equipment were placed on a top of a 0.8 meter height wooden table.
For Floor-Standing devices, the EUT and all cables were installed on electrical insulating material.
The antenna height was varied 1 to 4 meters and stopped at height producing the maximum emission. The turntable was rotated by 360 degrees and stopped at azimuth of producing the maximum emission.
Interconnecting cables which are connected to a peripheral was bundled in center, and its length was not exceed 1 meter.
Each emission was maximized by: varying the mode of operation; clock or data exchange speed; scrolling H pattern to the EUT and support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet; changing the polarity of the antenna, whichever determined the worst case emission.
The normalized site attenuation graph for the both horizontal and vertical polarization are shown in Description for site.

As specified in CFR section 15.33, in case of the highest frequency used in the device is from 108MHz to 500MHz, the frequency range was investigated from 30MHz up to the frequency 2GHz.
For measurements above 1GHz, double-ridged guide antenna was used as specified in ANSI C63.4-1992 section 4.1.5.4.
Pursuant to CFR section 15.35(b) and ANSI C63.4-1992 section 4.2., peak and average detectors were used for measurements above 1GHz.The bandwidth of spectrum analyzer was set to 1MHz.
When measuring emissions above 1GHz, the frequencies of maximum emissions were determined by manually positioning the antenna close to the EUT and by moving the antenna over all sides of the EUT while observing a spectral display. The beam width of the antenna at that time was larger than EUT.

DESCRIPTION OF CONDUCTED EMISSION TESTING

The line-conducted emissions testing facility is located inside of the site which used for radiated emissions testing.
A 1 meter x 1.5 meter surface, 0.8 meter height from conducting ground plane wooden table is placed 40 cm away from the vertical conducting surface.
Two 50•/50•H Line Impedance Stabilization Network (LISN) are placed on the conducting ground plane.
The EUT was powered from the CDI LISN and the support Equipment were another CDI LISN.
50•BNC connector of the CDI LISN (for peripheral) is terminated in 50•.
An isolation transformer has 50A which is large enough to not affect the peak consumption•current by the EUT.

All interconnecting cables more than 1 meter were bundled to 1 meter length.
Sufficient time for the EUT, support equipment, and test equipment were allowed in order for them to warm up to their normal operating condition.
The frequency range was scanned from 450KHz to 30 MHz. The detector function of the test receiver was set to CISPR quasi-peak mode and the bandwidth was set to 10KHz.

The EUT, support equipment and interconnecting cables were arranged and manipulated to maximize worst emissions for each emission in this test report.

TEST EQUIPMENT

Equipment	**Manufacture**	**Model name / Serial No**	**Cal.date**
Spectrum Analyzer	HEWLETT-PACKARD Co	HP8568B / 2732A03847	Mar.1998
Spectrum Analyzer	HEWLETT-PACKARD Co	HP8568B / 2634A02803	Apr.1998
Spectrum Analyzer	ADVANTEST	R3271A / 65050042	Feb.1998
RF Preamplifier	Anritsu	MH648A / M96157	Jun.1998
RF Preamplifier	HEWLETT-PACKARD Co.	HP8449B / 3008A00589	Jan.1998
RF Preamplifier	HEWLETT-PACKARD Co	HP8447F / 2805A03056	May.19

			98
Signal Generator	HEWLETT-PACKARD Co.	HP8657A / 2750U00157	Jul.1998
Test Receiver	ROHDE & SCHWARZ	ESV / 89237	Feb.1998
Test Receiver	ROHDE & SCHWARZ	ESH2 / 892237/012	Jun.1998
Test Receiver	ROHDE & SCHWARZ	ESHS10 / 61360022	Aug.1998
Test Receiver	Kyouritsu Electrical Works, Ltd.	KNM-5002/ 4N-187-2 KCV-6002/ 4-288-1	Sep.1997
Test Receiver	Kyouritsu Electrical Works, Ltd.	KNM-5002/ 4N-187-10 KCV-6002/ 4-257-1	Jan.1998
Test Receiver	Kyouritsu Electrical Works, Ltd.	KNM-5002/ 4N-195-2 KNM-6002/ 4-269-2	Aug.1998
Test Receiver	Kyouritsu Electrical Works, Ltd.	KNM-2402/ 4N-192-1	Aug.1998
Test Receiver	Kyouritsu Electrical Works, Ltd.	KNM-2402/ 4N-220-1	Feb.1998
Line Impedance Stabilization Network	COMPLIANCE DESIGN Inc	8012-50-R-24-BNC/887121	Nov.1997
Line Impedance Stabilization Network	Kyouritsu Electrical Works, Ltd.	KNW-242C / 8-875-19	Oct.1997
Dipole Antenna	COMPLIANCE DESIGN Inc	ROBERTS ANTENNA (TM)	May.1998
Biconical Antenna	Schwarzbeck		May.1998
Log Periodic Antenna	Electro-Mechanics Co.	3146 / 8901-2336	May.1998
Log Periodic Antenna	Electro-Mechanics Co.	3146 / 8901-2332	Mar.1997
Loop Antenna	ROHDE & SCHWARZ	HFH2-Z2 / 892246/010	Nov.1997
Double Ridged Guide Antenna	Electro-Mechanics Co.	9408-4328	Sep.1996

Calibration traceable to NIST or an equivalent standards reference organization.

SAMPLE OF FIELD STRENGTH CALCULATION

$$dB\bullet V\ \bullet = 20\log_{10}\ (\bullet V)$$

$$dB\bullet V/m\bullet = 20\log_{10}\ (\bullet V/m)$$

[Sample Calculation]

*For Conduction Class B limit = 250•V = 48.0dB•V

@ 3.332MHz

Reading = 41.6dB•V
Cable Loss = 0.2dB
Total = 41.6 + 0.2 = 41.8dB•V

Margin = 41.8 - 48.0 = -6.2dB

6.2 dB below the limit

*For Radiation Class B limit = 150•V/m = 43.5dB•V/m

@ 181.0MHz

Reading = 35.7dB•V
Ant. Factor + Cable Loss - Amp. Gain = 15.8 + 1.4 - 15.0 = 2.2dB
Total = 35.7 + 2.2 = 37.9dB•V/m

Margin = 37.9 - 43.5 = -5.6dB

5.6 dB below the limit

LABORATORY MEASUREMENTS

PURSUANT TO PART 15, SUBPART B

COMPANY NAME	:	KENWOOD CORPORATION COMMUNICATION EQUIPMENT DIVISION
EUT	:	SCANNING RECEIVER / PERIPHERAL
MODEL NO.	:	TH-D7A
FCC ID	:	K4428871110
SERIAL NO.	:	N/A
DATE OF TESTS	:	September 9, 14, 1998
MEASUREMENT	:	ANSI C63.4-1992
FCC CLASS	:	B
DISTANCE	:	3m
POWER SUPPLIED	:	DC 13.8V(From DC Power Supply) or 6.0V (From Battery)
REPORT NO.	:	Z02C-98265

JUSTIFICATION / ENGINEERING COMMENT

The detector function in frequency range of 30MHz-1GHz was set to Quasi-peak mode.
Peak and average detectors were used for measurements above 1GHz.
Cables were manipulated to produce the worst case emissions.

All operating configuration, combination of Accessory: Microphone, Battery charger and DC power supply were investigated in preliminarily testing. Either condition; with and without ferrite cores on the optional PC cable were measured, and both conditions comply with the limits.
Sufficient warm up time is proved for these testing.

ENGINEER : Tomokazu Kato

SMMURY OF TEST DATA

RADIATED EMISSION DATA

OPERATING CONFIGURATION (Battery used)		RESULT
TEST MODE	FREQUENCY	MARGIN
PC connect (with core on PC cable)	40.00MHz	-4.9dB
PC connect (without core on PC cable)	40.00MHz	-6.0dB

CONDUCTED EMISSION DATA

OPERATING CONFIGURATION (Battery used)		RESULT
TEST MODE	FREQUENCY	MARGIN
PC connect (with core on PC cable)	0.523MHz	-12.3dB
PC connect (without core on PC cable)	0.525MHz	-12.8dB

TEST SITE CONDITION

DATE	SITE #	WEATGER	TEMPERTURE	HUMIDITY
09/ 09/ 1998	3	SUNNY	27•	60%
09/ 14/ 1998	3	SUNNY	29•	58%

INSTRUMENTATION USED

[*] RECEIVER
RADIATED [ ] R/S ESV (DET [ ] QP [ ] PEAK)
[*] KYORITSU KNM-5002,KCV-6002 (DET [*] QP [ ] PEAK)
IF BANDWIDTH [*] 120kHz [ ] OTHER kHz
CONDUCTED [ ] R/S ESH2 (DET [ ] QP [ ] PEAK [ ] AVERAGE)
[*] KYORITSU KNM-2402 (DET [*] QP [ ] PEAK [ ] AVERAGE)
IF BANDWIDTH [ ] 200Hz [ ] 500Hz [ ] 24kHz [*] 10kHz
PRI AMP [ ] HP8449B (1GHz-26.5GHz) [*] ANRITSU MH648A (100kHz-1.2GHz)
[ ] NOT USED

[*] SPECTRUM ANALYZER
[ ] HP8568B (DET [ ] QP [ ] PEAK [ ] AVERAGE)
[ ] HP8590A (DET [ ] PEAK [ ] AVERAGE)
[*] ADVANTEST R3271(100Hz-26.5GHz) (DET [*] PEAK [*] AVERAGE)
RADIATED: RESOLUTION BANDWIDTH
[ ] 10kHz [ ] 30kHz [*] 100kHz [ ] 120KHz [ ]300kHz
VIDEO BANDWIDTH
[ ] 3kHz [ ] 10kHz [ ] 30kHz [ ] 100kHz
[ ] 300kHz [*] 1MHz [ ] 3MHz
CONDUCTED: RESOLUTION BANDWIDTH
[ ] 100Hz [ ] 300Hz [ ] 1kHz [ ] 3kHz [ ] 10kHz
VIDEO BANDWIDTH
[ ] 100Hz [ ] 300Hz [ ] 1kHz [ ] 3kHz [ ] 10kHz
[ ] 30kHz [ ] 100kHz [ ] 300kHz [ ] 1MHz [ ] 3MHz
PRI AMP [ ] HP85685A [*] HP8449B [ ] NOT USED

ANTENNAS [*] SCHWARZBEC BBA9106/VHA9103LE
[*] EMCO LOGPERIODIC DIPOLE MODEL 3146
[ ] R/S LOOP ANTENNA HFH2-Z2 (10kHz-30MHz)
[ ] ADVANTEST LOG SPIRAL ANTENNA MODEL TR17205 (1-10GHz)
[*] EMCO DOUBLE RIDGED GUIDE ANTENNA MODEL 3115 (1-18GHz)
COAXIAL CABLE
[*] 8D-2W 15m
[*] 23D-HA 30m, 8D-2W 8m [ ] OTHER (m)
[ ] 23D-HA 30m, 8D-2W 15m [*] SUCOFLEX 104 15m
ANTENNA LOCATION

[ ] 1m CLOSE FROM EUT [*] 3m METHOD STANDARD
[ ] 10m METHOD STANDARD [ ] OTHER (
)

LISN [*] CDI 8012-50-R-24-BNC [ ] KYORITSU KNW-242C

MEMO

CONFIGURATION INFORMATION

DEVICE INFORMATION

COMMENT:

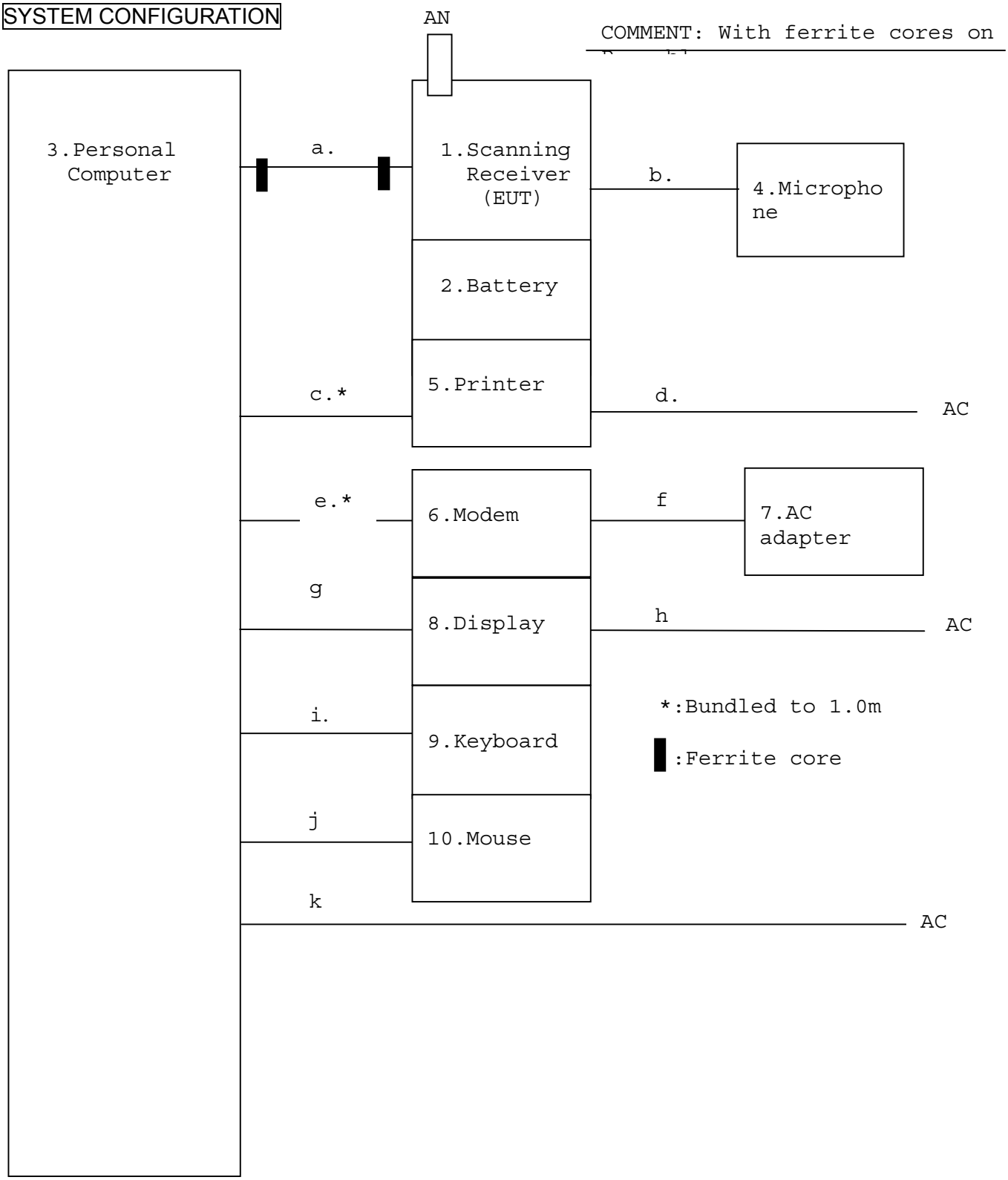
NO.	EQUIPMENT	COMPANY	MODEL NO.	SERIAL NO.	FCC ID	COMMENT
1	Scanning Receiver	KENWOOD	TH-D7A	N/A	K4428871110	EUT
2	Battery	KENWOOD	N/A	N/A	N/A	Accessory
3	Personal Computer	HP	Vectra 525	US70254071	B94VECTRAVEMT	
4	Microphone	KENWOOD	SMC-34	N/A	N/A	
5	Printer	HP	C4555A	US6BC1212N	B94C4555X	
6	Modem	US Robotics	839	000839032BK6YU27	DoC	
7	AC adapter	US Robotics	N/A	N/A	N/A	for Modem
8	Display	NEC	JC-1531VMA-3	4000137HA	A3DJC-1531VMA	
9	Keyboard	HP	E03633WLUS-C	N/A	CIGE03633	
10	Mouse	HP	M-S34	LZB64901930	DZL211029	

CABLES INFORMATION

NO.	CABLE	COMPANY	LENGTH [m]	SHIELDED	COMMENT
a	PC cable	KENWOOD	2.0	Shielded	Either condition; with/without ferrite cores on cable were measured, and both conditions comply with the limits.
b	Microphone cable	KENWOOD	1.0	Unshielded	Coiled
c	Centronics cable	N/A	2.0	Shielded	Bundled to 1.0m
d	AC Power cord	N/A	2.0	Shielded	For Printer
e	RS-232C cable	Inmac	2.0	Shielde	

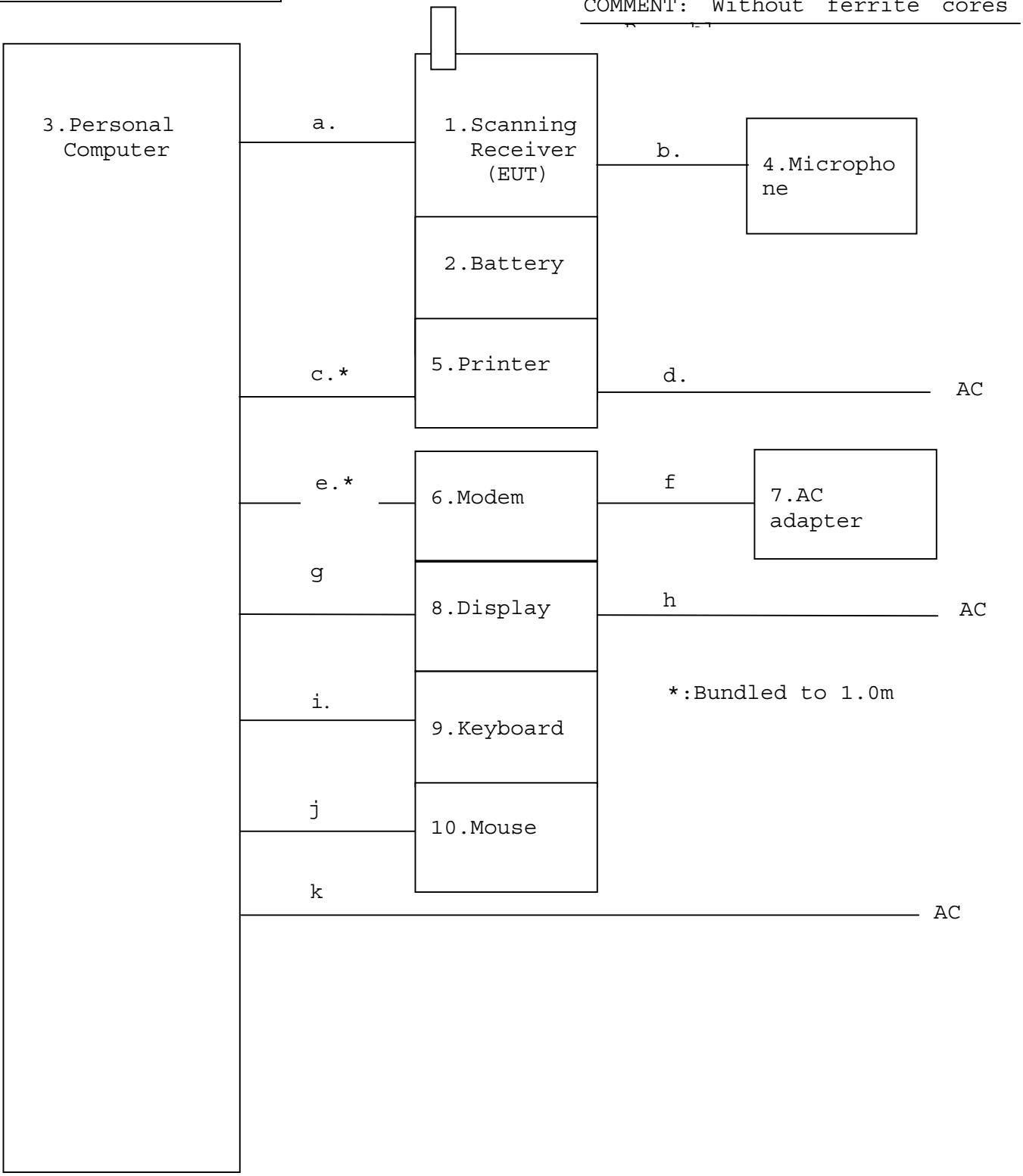
				d	
f	DC cable	N/A	2.0	Unshielded	For Modem
g	CRT cable	Goldstar	1.5	Shielded	
h	AC Power cord	N/A	2.0	Unshielded	For Display
i	Keyboard cable	HP	1.5	Unshielded	
j	Mouse cable	HP	2.0	Unshielded	
k	AC Power cord	HP	2.5	Unshielded	For PC

SYSTEM CONFIGURATION



SYSTEM CONFIGURATION

COMMENT: Without ferrite cores



FCC CFR 47 Part 15.121 Design Requirements

KENWOOD SCANNING RECEIVER
FCC ID: K4428871110

This device (FCC ID: K4428871110) is incapable of operating (tuning) or being altered by the user to operate within the frequency bands allocated to the Domestic Cellular Radio Telecommunications Service in part 22 of this chapter (Cellular telephone bands).
The TH-D7A (FCC ID: K4428871110) is already designed “not locked” the Cellular Telephone Bands by “PLL circuit” from “CPU”.
Therefore, the TH-D7A (FCC ID: K4428871110) is not designed to the ability to receive in the Cellular Telephone Bands if Modification (: Installing parts or replacing parts) are performed by the user.