

FCC PART 15 SUBPART B
CERTIFICATION REPORT for E-File

Anritsu Corporation

BioCryptoCard

FCC ID: 0UHRAS8250B

Report No. : Z02C-99352

Report Issue Date: December 27, 1999

ZACTA TECHNOLOGY CORPORATION
YONEZAWA TESTING CENTER

4149-7 Hachimanpara 5-chome
Yonezawa-shi Yamagata
992-1128 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 : Anritsu Corporation
FCC ID : OUHRAS8250B
FCC RULE PART : FCC Part 15 Subpart B, Docket 87-389
EQUIPMENT : Class B
CLASS
EUT TYPE : BioCryptoCard (Computing Device
Peripheral)
MAX USED FREQ. : 45.1214MHz
DATE OF TEST : December 15, 1999
MEASUREMENT : ANSI C63.4-1992
TEST RESULT : Complied
REPORT NO. : Z02C-99352
REMARKS : No modification was made during testing.

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: Kiyoshi Endo
Manager of Technical Division

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

FCC ID: OUHRAS8250B

Zacta Technology Corp.

LABORATORY MEASUREMENTS

PURSUANT TO PART 15, SUBPART B

COMPANY NAME : Anri tsu Corporation
EUT : Bi oCryptoCard (Computi ng Devi ce
Peri pheral)
[It is the PC card having PCMCIA
interface and is inserted Standard
TYPE II PC Card Slot. Up to 200
fingerprints information can be
Registered in Bi oCryptoCard.]
FCC ID : OUHRAS8250B
MODEL NO. : SL101-10
SERIAL NO. : QUL9Y00J
MEASUREMENT : ANSI C63.4-1992
EQUIPMENT : Class B
CLASS
DI STANCE : 3m
DATE OF TESTS : December 15, 1999
POWER SUPPLIED : DC +5V
REPORT NO. : Z02C-99352

JUSTIFICATION / ENGINEERING COMMENT

The detector function in frequency range of 30MHz-1GHz was set to Quasi - peak mode.

Cables were manipulated to produce the worst case emissions.

EUT is not directly connected to the AC power line, therefore the power conduction data of Host PC was reported.

All operating configuration were measured.

Sufficient warm up time is proved for these testing.

ENGINEER: Hi roaki Suzuki

FCC ID: OUHRAS8250B

SUMMARY OF TEST DATA

The minimum margins to the limits are as follows:

RADIATION DATA

Margi n	Frequency	Pol ari ty [H/V]	Comment
-2. 2dB	48. 20MHz	V	

CONDUCTION DATA

Margi n	Frequency	Comment
-10. 7dB	8. 159MHz	

Note: EUT is not directly connected to the AC power line, therefore the power conduction data of Host PC was reported.

CONFIGURATION INFORMATION

DEVICE INFORMATION

NO.	EQUIPMENT	COMPANY	MODEL NO.	SERIAL NO.	FCC ID	COMMENT
1	BioCryptoCard	Anritsu	SL101-10	QUL9Y00J	OUHRAS8250B	EUT
2	Personal Computer	IBM	2640-65J	97-121F0	DoC	
3	CF adapter	3M	N/A	N/A	N/A	
4	Compact Flash	MELCO	RCF-C	190524	N/A	15MB
5	AC adapter	IBM	83H6340	J14HC4554PC	N/A	For PC
6	Display	SAMSUNG	CFA7689L	H3LF400956	A3LCFA767	
7	Printer	LEXMARK	4049-LM1	000-5700L-02	IYL4049-L	
8	Modem	EPSON	C202A	010710	BKM552C202A	
9	AC adapter	EPSON	H00CAA	025237	N/A	For Modem
10	FDD	IBM	FD-05P	J13WY143969	DoC	
11	USB Keyboard	NEC	CMQ-6D02D	48018030	DoC	
12	Mouse	Microsoft	X03-65050	2771013-00000	C3KKMP1	
13	Speaker/Microphone	AT&T	006-3504717-L	0117047	N/A	(x2)

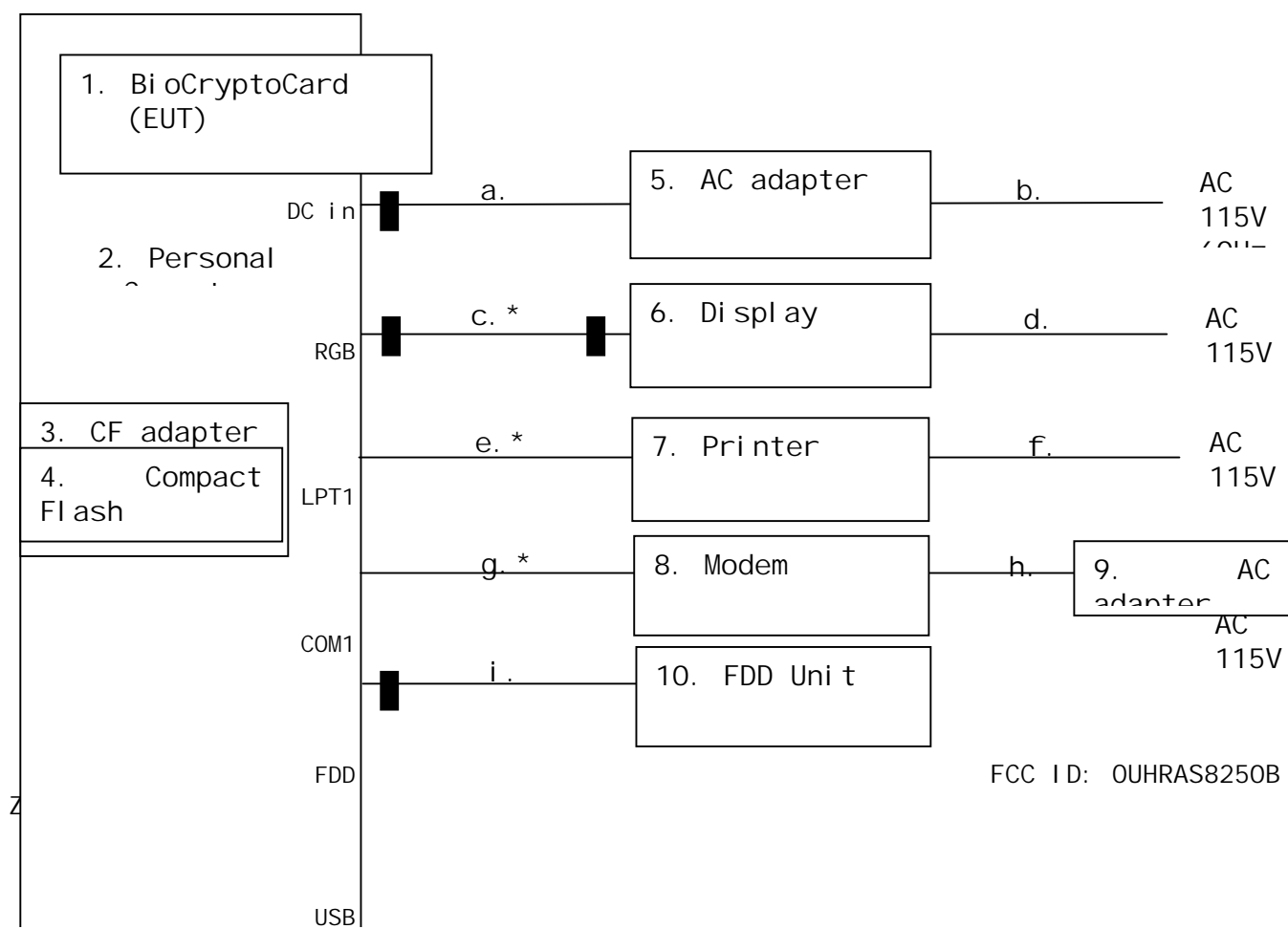
CABLES INFORMATION

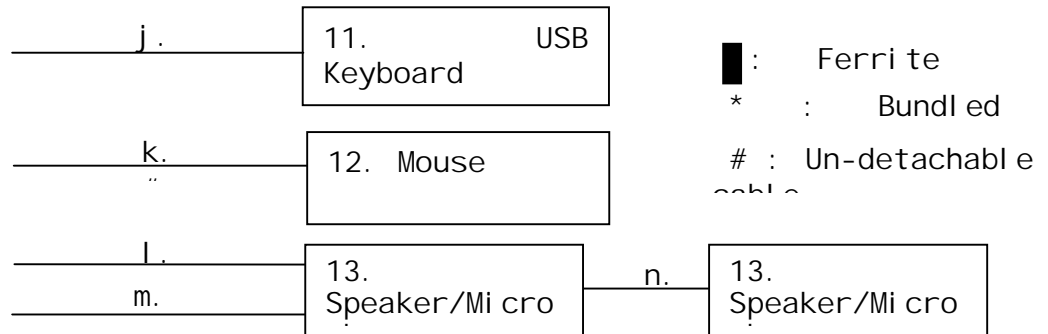
NO.	CABLE	COMPANY	LENGTH	SHIELD		Connected Situation		COMMENT
			[m]	Cable	Connector	From	To	
a	DC cable	N/A	1.8	Unshielded	Plastic	PC	AC adapter for PC	
b	AC power cord	N/A	1.0	Unshielded	Plastic	AC adapter for PC	AC outlet	
c	RGB cable	N/A	1.8	Shielded	Metal	PC	Display	*
d	AC power cord	HIRAKAWA	2.3	Shielded	Plastic	Display	AC outlet	
e	Printer	N/A	3.0	Shielded	Metal	PC	Printer	*

	cable			d				
f	AC power cord	N/A	1.8	Unshielded	Plastic	Printer	AC outlet	
g	RS232C cable	SANWA SUPPLY	2.0	Shielded	Metal	PC	Modem	*
h	DC cable	N/A	1.8	Unshielded	Metal	Modem	AC adapter for Modem	
i	FDD cable	mol ex	0.3	Shielded	Metal	PC	FDD	
j	USB K/B cable	N/A	2.0	Shielded	Metal	PC	USB K/B	
k	Mouse cable	N/A	1.8	Unshielded	Metal	PC	Mouse	
l	Microphone cable	N/A	2.2	Unshielded	Metal	PC	Speaker/Mic	
m	Speaker cable	N/A	2.2	Unshielded	Metal	PC	Speaker/Mic	
n	Stereo speaker cable	N/A	2.0	Unshielded	Metal	Speaker/Mic	Speaker/Mic	

*Bundled excess cable.

SYSTEM CONFIGURATION





Comment: Please note that No. 2 Personal Computer, No. 6 Display and No. 10 FDD unit in above diagram are certified or DoC with the molded ferrite core on cable. I/F cables are Un-detachable or accessory of the device. Ferrite core is not added during testing.

LABORATORY DESCRIPTION

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:

Site name : Site 1, Site 2, Site 3 and Site 4 - Total 4 sites.

3. THE TYPE OF SITE:

Whether protected site

4. TEST TYPE:

All sites could perform as follows tests:

- 1) 3/10m Radiation test
- 2) Conduction test

5. FACILITY FILING INFORMATION

- 1) FCC FINAL SITE FILING: 2.948 Pursuant to ANSI C63.4-1992

Site name	Final filing date
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Site 1, Site 2 and Site 3	January 29, 1997
Site 4	June 18, 1998

*3m/10m Radiation & Conduction testing could be performed on each site

- 2) VCCI FINAL SITE FILING: V-5/97.04 Pursuant to VCCI Regulations for Registration of measurement facilities

Site name	Radiation Registration No.	Conduction Registration No.	Final filing date
Site 1	R-136	C-132	April 1, 1997
Site 2	R-137	C-133	April 1, 1997
Site 3	R-138	C-134	April 1, 1997
Site 4	R-752	C-775	June 23, 1998

- 3) NVLAP ACCREDITATION:

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 CONDUCTION 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 KYORITSU LISN and the supports Equipment were another KYORITSU LISN.

50 BNC connector of the KYORITSU 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.

DESCRIPTION OF RADIATION TESTING

Measurements: were made at 3 meter using broadband antenna (Bi conical Antenna and log-periodic antenna) & Test receiver. Frequency Range: 30MHz – 1GHz was scanned and investigated using receiver. Six highest emissions (Min.) were 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 exceeding 1 meter. Each emission was maximized by varying the mode of operation.

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, when the highest frequency is from 500MHz to 1GHz, up to 5GHz.

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.

UNCERTAINTY

Conducted Emission Test

Total probability	Uncertainty @95%min.	Confidence	±1.78dB
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Radiated Emission Test

Total probability	Uncertainty @95%min.	Confidence	3m	10m
			±2.66dB	±2.01dB

TEST SITE CONDITION & INSTRUMENTATION

TEST SITE CONDITION

Test date	December 15, 1999
Site #	Site 1
Power supply	DC +5V
Weather	Weather: Cloudy Temp. : 18 Humidity: 35%
Standard	ANSI C63.4-1992
Deviation from The standards	Not applicable

TEST EQUIPMENT FOR CONDUCTION

Equipment	Company	Model name / Serial No.	Calibration date	Period
Spectrum Analyzer	Hewlett Packard	8568B / 2634A02803	Jun. 1999	1 year
Test Receiver	Kyori tsu Electrical Works, Ltd.	KNM-2402 / 4N-192-1	Nov. 1999	1 year
Line Impedance Stabilization Network	Kyori tsu Electrical Works, Ltd.	KNW-242C / 8-1096-3 (For EUT)	Jan. 1999	1 year
Line Impedance Stabilization Network	Kyori tsu Electrical Works, Ltd.	KNW-242C / 8-875-19 (For peripheral)	Feb. 1999	1 year
Coaxial cable	FUJIKURA	8D-2W / H110601#1/15C	Jun. 1999	1 year

TEST EQUIPMENT FOR RADIATION

Equipment	Company	Model name / Serial No.	Calibration date	Period
Spectrum Analyzer	Hewlett Packard	8568B / 2634A02803	Jun. 1999	1 year
RF Preamplifier	Anritsu	MH648A / M96057	Oct. 1999	1 year
Test Receiver	Kyoritsu Electrical Works, Ltd.	KNM-5002 / 4N-200-5 KCV-6002 / 4-288-2	Jun. 1999	1 year
Biconical Antenna	Schwarzbeck	BBA9106/VHA9103LE / 13130919	Jun. 1999	1 year
Log Periodic Antenna	EMCO	3146 / 2336	Jun. 1999	1 year
Coaxial cable	FUJIKURA	8D-2W / H110601#1/08R	Jun. 1999	1 year
Coaxial cable	FUJIKURA	23D-HA/ H110601#1/23D-HA	Jun. 1999	1 year
Site attenuation	Zacta Technology Corp.	Site 1	Dec. 1999	1 year

Calibration is traceable to NIST or an equivalent standards reference organization.

SAMPLE OF FIELD STRENGTH CALCULATION

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

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

[Sample Calculation]

*CONDUCTION

@ 3.332MHz : Class B limit = 250 V = 48.0dB V

Reading = 41.6dB V

Cable Loss + LISN Factor = 0.2 + 0.5 = 0.7dB

Total = 41.6 + 0.7 = 42.3dB V

Margin = 42.3 - 48.0 = -5.7dB

5.7 dB below the limit

*RADIATION

@ 147.6MHz : Class B limit = 150 V/m = 43.5dB V/m

Reading = 42.8dB V

Ant. Factor + Cable Loss - Amp. Gain = 14.2 + 3.0 - 30.0 = -12.8dB

Total = 42.8 - 12.8 = 30.0dB V/m

Margin = 30.0 - 43.5 = -13.5dB

13.5 dB below the limit

: a

FCC PART 15B Class B 3m CONDUCTION DATASHEET @

DATE OF TESTS : 99/12/15 SITE 1 CHART NO SHEET NO 1
 COMPANY NAME : Aritsu MODEL: SL101-10 MDE
 COMMENT:

FREQ [MHz]	READ A [dBμV]	READ B [dBμV]	FACTOR [dB]	NET A [dBμV]	NET B [dBμV]	LIMITS [dBμV]	MARGIN [dB]	COMMENT
0.472	22.6	21.7	0.1	22.7	21.8	48.0	-25.3	
5.342	34.7	34.6	0.3	35.0	34.9	48.0	-13.0	
8.159	36.8	36.0	0.5	37.3	36.5	48.0	-10.7	—
8.935	36.0	36.3	0.5	36.5	36.8	48.0	-11.2	
12.875	34.2	34.1	0.5	34.7	34.6	48.0	-13.3	
21.730	27.2	29.3	0.8	28.0	30.1	48.0	-18.1	

FCC PART15B Class B 3m RADIATION DATA SHEET @

DATE OF TESTS: 99/12/15 SITE: 1 CHART NO - SHEET 2
 COMPANY NAME: Aritsu MODEL: SL101-10 MODE
 COMMENT:

POL	FREQ	READ	FACTOR	NET	LIMITS	MARGIN	COMMENT
H/V	[MHz]	[dBμV]	[dB/n]	[dBμV/n]	[dBμV/n]	[dB]	
H	48.20	51.5	-15.4	36.1	40.0	-3.9	
V	48.20	53.2	-15.4	37.8	40.0	-2.2 *	
H	66.28	58.8	-21.0	37.8	40.0	-2.2 *	
H	78.32	55.1	-22.3	32.8	40.0	-7.2	
V	118.83	51.1	-15.8	35.3	43.5	-8.2	
H	120.48	51.4	-15.5	35.9	43.5	-7.6	
H	156.62	53.6	-12.6	41.0	43.5	-2.5	
V	156.62	44.9	-12.6	32.3	43.5	-11.2	